FOR RICHER FIELDS

Croplife®

PUBLISHED EVERY MONDAY

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

Published by The Miller Publishing Co., Minneapolis, Minn.

Vol. 2 | Subscription Rates: $5 for 1 year, $9 for 2 years | JANUARY 31, 1955 | Acceptance under Section 34.64, P. L. and R. authorized. | No. 5

Regulations Issued For Certification Of Pesticides

Rules for Securing Usefulness Certificates Outlined by USDA

WASHINGTON—Regulations governing certification by U.S. Department of Agriculture of the usefulness of pesticide chemicals, as authorized under Public Law 518 (the Miller Bill), have been issued, the USDA announced Jan. 24.

Except for minor clarifying changes, these regulations are the same as those originally proposed by the Department last Nov. 24. (See Croplife, page 1, Dec. 6.) They will appear as Part 363, Title 7, Code of Federal Regulations, and will become effective 30 days after their publication in the Federal Register.

Public Law 518, passed in July, 1954, amends the Federal Food, Drug and Cosmetic Act. It requires the Food and Drug Administration, Department of Health, Education and Welfare, to establish tolerances with respect to the amounts of pesticide chemicals likely to be left in or on harvested food crops, or to exempt pesticides from the requirement that residue tolerances be established.

The Department of Agriculture has two legal functions in enforcing this law. First, through the Plant Pest Control Branch of the Agricultural Research Service, USDA will determine for FDA whether or not an insecticide or other economic poison is useful for the purpose for which a residue tolerance or exemption is sought. Second, the department will give FDA its opinion concerning the

(Continued on page 8)

Farmers Union, Kerr-McGee Form New Potash Firm

DENVER — National Farmers Union and Kerr-McGee Oil Industries, Oklahoma City, have formed a new company to develop NFU potash holdings in New Mexico. (See Croplife, Page 1, Nov. 1.)

Under a tentative contract, James G. Patton, president of NFU, will head the new firm, and Sen. Robert Kerr (D., Okla.) will be chairman of the board. Tentative plans call for each group to hold 50% of the stock in the new company.

Temporary headquarters will be at Oklahoma City. They will shift to New Mexico when field operations begin.

John H. Riddle Heads Limestone Institute

WASHINGTON — John H. Riddle, president of Riddle Quarries, with headquarters in Salina, Kansas, was elected president of the National Agricultural Limestone Institute at its recent convention here.

International Plans $1 Million Potash Expansion Program

CHICAGO — A. Norman Into, vice president in charge of the Potash Division of International Minerals & Chemical Corp., Chicago, said last week that the firm is planning a more than $1,000,000 expansion program for its potash plant in Carlsbad, N.M.

Mr. Into said that International is adding 40,000 tons a year capacity to its facilities for the production of sulphate of potash.

Equipment has been ordered and work will start soon, according to the announcement.

Lower Freight Rate Due Feb. 10 for Anhydrous Ammonia

WASHINGTON—Rail freight rates for anhydrous ammonia will be lower in the approximate area east of the Rockies after Feb. 10, according to the Traffic Committee of the National Fertilizer Assn.

Robert T. Smith, Davison Chemical Co., chairman of the committee, has notified NFA that effective Feb. 10 anhydrous ammonia rates in carloads will be rated Column 30 of Docket 28300, instead of Column 35 as at present. This means a rate reduction in and between Official, Southern, Western, Trunk Line and Southwestern Territories.

Examples of the reductions in the affected area are: 100 lb. anhydrous ammonia shipped 100 miles, basic rate down from present 40¢ to 34¢; 100 lb. 300 miles, 63¢ to 54¢; 100 lb. 500 miles, 81¢ to 69¢; 100 lb. 1,000 miles, $1.21 to $1.04.

U.S. Industry Faces Loss From Potash Imports, Hearing Told

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — Sales of East German muriate of potash at between $6 and $8 per ton below domestic prices are alleged to be a violation of the U.S. Anti-Dumping Act and threaten to produce a loss of at least $2.5 million annually to the American potash industry, the U.S. Tariff Commission was told here last week.

The Tariff Commission is holding hearings on these imports following a finding by the Treasury Department last year that East German muriate of potash is being sold in the U.S. at less than its fair market value.

The purpose of the hearings is to determine the extent of injury to the U.S. potash producers, and if that conclusion is reached by the commission anti-dumping duties may be applied.

Speaking for the U.S. Potash Co., New York, Paul Speer, its general counsel, cited the threatened loss to the U.S. industry of $2.5 million directly from these imports. He also cited the collateral loss of revenue to U.S. railroads of as much as $2 million annually in revenue in moving U.S. potash from its sources in New Mexico to eastern markets, which consume an estimated 40% of the U.S. market.

It is in these eastern markets, according to Mr. Speer, that these iron curtain area imports hit the hardest with their dumping price, since they can move inland up to 300 miles directly in competition with the U.S. material.

A U.S. counteract of meeting the foreign price would not be effective, A. Norman Into, vice president in charge of the Potash Division International Minerals and Chemical Corp., Chicago, told the commissioners. Meeting competition head on with similar low price is no assurance that the Russian sources will not continue to lower prices to obtain tonnage in the U.S. market, he said.

Backing up this assertion, Mr. Into said that his company cut its price last April by $2 per ton, an action in which the Atchison, Topeka and Santa Fe Railroad joined with a freight rate reduction of $1.50 per ton.

This domestic price cut plus congressional investigation in 1953 and the Treasury Department finding of

(Continued on page 8)

Corn Borer Poses Threat to Midwest

Serious Infestation Likely, Survey Shows

WASHINGTON—Corn Belt farmers in 1955 may be faced with a serious infestation of European corn borers if spring weather is favorable for this insect's development, say U. S. Department of Agriculture entomologists.

This outlook is based on field surveys conducted last fall by 25 states infested by the corn borer, including those in the main Corn Belt. Information obtained from these surveys

(Continued on page 20)

California Agricultural Aircraft Group Discusses Regulations, Safety, Equipment, Legislation

SACRAMENTO—Nearly 500 members, their associates and guests gathered here January 20-23 for the fifth annual convention of the California Agricultural Aircraft Assn. at which all phases of this industry were discussed.

Regulations, handling of economic poisons, safety equipment, insurance problems, the future of the industry, development of new types of aircraft and many other problems of the trade were discussed by more than a score of speakers in the Empire Room of Sacramento's Hotel Senator.

Gov. Goodwin J. Knight officially opened the convention at a banquet at which he endorsed legislation which would enable crop dusters to obtain crop liens for their services.

Describing Assembly Bill 96 now before the 1955 session of the State Legislature as a "very good measure," Gov. Knight said it would enable a duster to take a lien on a farmer's crop if necessary to insure payment for services rendered in a manner similar to mechanics' liens obtained by bricklayers, carpenters or other workmen.

The governor praised the crop dusters as a young branch of the "biggest industry in California—agriculture" and predicted their business will continue to grow with the state's agricultural economy.

Charles H. Branstetter, Jr., of Sacramento, retiring president of the association, also addressed the banquet. He urged dusters to explore new ways by which aircraft can serve farmers.

Named to succeed Mr. Branstetter as head of the association for the next year was Henry C. "Hank" Moore of Tulare, president of Moore Aircraft. James B. French of the Farmers Crop Service, Bakersfield, one of California's largest agricultural aircraft enterprises, was elected vice president. Daisy Walsh of Walsh Flying Service, Woodland, was elected secretary-

(Continued on page 20)

Inside You'll Find

Insect Notes	4
Over the Counter	9
Oscar and Pat	10
What's New	12
Bug of the Week	14
World Report	18
Editorials	22
Index of Advertisers	23
Meeting Memos	23

they'll be poppin' their kernels

with POWCO BRAND

ALDRIN

CONTROL SOIL PESTS . . . INCREASE YIELDS

Powco Brand 20% Aldrin Granular Concentrate and 2 lb. Aldrin Emulsion Concentrate:

1. Protect germination. 2. Are safe on seed and plants. 3. Provide early stands. 4. Reduce harvesting costs. 5. Provide better quality crops. 6. Are not absorbed by or translocated in plants. 7. Give no off-flavor. 8. Are chemically stable.

POWELL — KILLING POWER—THAT'S THE THING!

JOHN POWELL & COMPANY
Div. of Olin Mathieson Chemical Corp.
One Park Ave., New York 16, N. Y.
Chicago, Atlanta, Forth Worth, Omaha, Denver, Pittsburgh, Philadelphia, Huntsville, Ala.

DDT · TOXAPHENE · BHC · CHLORDANE · LINDANE · ROTENONE · SABADILLA
PYRETHRUM & PYRIN · ANTU · PIPERONYL BUTOXIDE · MALATHION · ALLETHRIN
TEPP · PARATHION · ALDRIN · DILAN · HEPTACHLOR · 2, 4-D & 2, 4, 5-T · FLY FLAKES

LOOK TO POWELL . . . FOR CONSISTENT TROUBLE-FREE QUALITY

SOILS and FERTILIZERS

Fourth Edition

By FIRMAN E. BEAR, *Research Specialist, New Jersey Agricultural Experiment Station.*

In plain language, this new edition tells how recent *modern* advances in soil technology affect plant growth and annual yield . . . and how the effective use of basic methods can increase the productiveness of farm lands. New facts, accurate figures, and 66 pointed illustrations show the relation between crops and soils.

1953. 420 Pages $6.00

Covers in detail: soil chemicals . . . important soil elements such as nitrogen, phosphorus, calcium . . . yield prospects of crop plants . . . moisture control . . . soil management . . . mechanical operations . . . soil conservation . . . organic matter maintenance.

For Sale By

CROPLIFE

P.O. Box 67, Minneapolis 1, Minn.

Diamond Alkali Expands Research Center Facilities

PAINESVILLE, OHIO — Diamond Alkali Co. is now modernizing and enlarging certain key facilities of its Research Center in Painesville, Ohio, at a cost of approximately $200,000 to meet the expanding needs of the firm's fundamental and applied research programs, it was announced here recently by Thornton F. Holder, research coordinator for the firm.

Contract for the project has been awarded to the Hubert Rust Construction Co., Painesville, which already has started to work on the job.

The project calls for providing additional space needed to take care of Diamond's expanding exploratory efforts on new products and processes under the direction of Dr. A. W. Meyer, director of exploratory research.

The Research Center modernization program includes the installation of a new radiation research laboratory for investigating potential applications of atomic energy for chemical applications.

Alkali and electrolytic products research, directed by C. C. Brumbaugh, will also be expanded as a result of this modernization—enlargement program, Mr. Holder indicated. Likewise, improved facilities are being made available for research devoted to plastics, calcium carbonates, chlorinated organics and chromates.

The new facilities are expected to be completed and put into full-scale operations in early spring, Mr. Holder said.

Firm Expands Representation of Emulsol Chemical

CHICAGO — Emulsol Chemical Corp., Chicago, has announced that Charles Albert Smith Ltd., headquartering at 356 Eastern Ave., Toronto, Ont., has expanded its representation of Emulsol, Chicago, effective last Jan. 3.

The expansion includes the entire dominion of Canada in the sale and distribution of Emulsol's line of surface active agents for the food, cosmetic, industrial and agrichemical fields.

Plans Approved For Preliminary NPFI Convention

WASHINGTON—Plans have been approved for a preliminary convention of the National Plant Food Institute at The Greenbrier, White Sulphur Springs, W. Va., June 12-15, 1955.

Russell Coleman, president of The National Fertilizer Assn. and Paul T. Truitt, president of the American Plant Food Council have announced that the preliminary convention will constitute the annual (1955) meetings of the memberships of the two fertilizer industry groups, which will be consolidated officially effective July 1, 1955.

The staffs of both organizations will make the arrangements for the joint convention and the program will be announced soon.

Members of the Council and NFA are being sent reservation forms immediately.

McConnon & Co. Names New Officers, Board Members

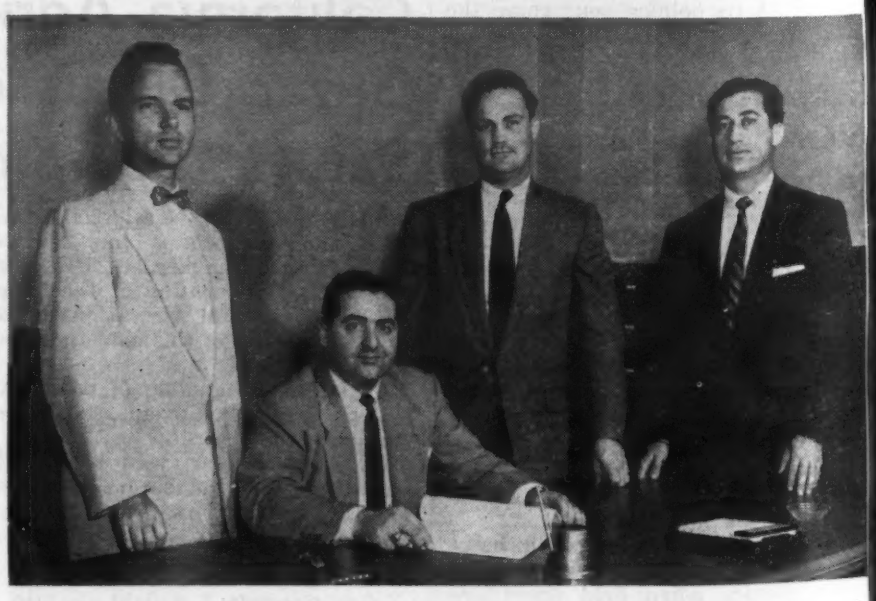
WINONA, MINN. — Action was taken at the annual meeting of McConnon & Co. here January 12 and completed at a director's meeting Jan. 20 electing J. R. McConnon as chairman of the board of directors.

James McConnon was elected president, H. G. McConnon, vice president, and G. A. Ostrom, secretary treasurer. J. R. McConnon had been president and James McConnon, vice president before the change.

W. T. Lemmon and R. W. Lundberg were elected as new members of the board of directors. The board now consists of J. R. McConnon, James McConnon, H. G. McConnon, R. M. Tolleson, Mr. Lemmon and Mr. Lundberg.

Mr. Lemmon is sales manager of The Mackwin Co., Division of McConnon & Co., which manufactures and sells agricultural chemicals including insecticides, fungicides and weed killers. Before joining McConnon & Co., he was in charge of the sale of agricultural chemicals for Shell Chemical Co. in the Middle West.

Mr. Lundberg is controller of McConnon & Co.



CRAG SALES CHANGES—New territorial assignments of four Crag agricultural chemicals sales representatives have been announced by Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corporation. M. J. Siciliano is transferred to the Chicago District Office, at 230 North Michigan Ave., and is assigned to the central U.S. J. R. Wheatley is assigned to the southeastern U.S., R. R. Kessler is assigned to the eastern seaboard from New York to South Carolina and R. E. McKenzie is assigned to New England and New York state. These three men will continue to work out of the company's New York City office at 30 East 42nd St. Above, left to right, are Mr. McKenzie, Mr. Siciliano, Mr. Wheatley and Mr. Kessler.

Over 500 Hear Latest Results Of Agronomy Research at Iowa State Fertilizer Conference

AMES, IOWA—More than 500 men rom the fertilizer industry of Iowa nd other midwestern states were on and for Iowa State College's Fer- lizer Manufacturer's Conference and ertilizer Short Course (Jan. 17-18).

Research and extension men of the ollege's department of agronomy oke, and a number of question-and- nswer sessions were held. The manu- acturer's conference attracted about 50 registrants for the Monday after- oon session.

Soil microbiologist Dr. W. V. Bartholomew presented an inter- pretation of data on applying ni- rogen to crop residues to "tie up itrogen and speed decomposition f the residues." Evaluation of the vidence, Dr. Bartholomew said, ndicates that nitrogen application o crop residues does little to in- luence the value of crop residues.

"We believe the amount of nitro- en that can be tied up by fall appli- tion of nitrogen to crop residues not unlimited," according to Dr. artholomew. Nitrogen that is tied p in residues, he added, is largely ot available to the next crop.

Iowa State studies of the import- nce of water-solubility of phosphates as reported by Dr. John Pesek, gronomy Department. In 20 experi- ents over a period of 4 years, Dr. esek reported, mixed fertilizers with gher percentages of P_2O_5 water- luble have been superior as hill- row-applied starters for corn and r short season crops such as oats. fferences in water-solubility have en less important where the phos- ate was applied in large amounts d plowed down or mixed well with e soil.

The type of solutions and treat- ent during the manufacturing pro- ss apparently affect the water- lubility, Dr. Pesek added, express- g belief that the water-solubility n be controlled to some extent by e conditions of manufacture.

Dr. W. H. Pierre, head of the Agron- ny Department, explained some the recent information on fertili- rs, fertility and factors that influ- ce crop performance. He cited the llege's soil test for nitrogen, which s been offered to Iowa farmers as standard test for just over a year. is test, he said, first of its kind the nation, provides a test of the torgen-supplying ability of the soil.

More than 100 of the manufactur- rs' conference group stayed over or the short course on Tuesday. hey were joined by another 400 efore the last of the three short ourse sessions got underway.

Floyd Andre, Dean of the Iowa ate Division of Agriculture, wel- med the visitors and gave a brief view of the Division of Agricul- re's programs in agronomy research nd in carrying information to the eople of Iowa.

College men turned the visitors' ttention to basic fundamentals in e morning session.

Dr. John Hanaway, in charge of the llege's Soil Testing Laboratory, il- strated the importance of accurate il tests for the varying soils of the ate. He warned against blanket rec- mmendations over even a single ajor soil type area. Soils in the rth-central heart of the state in any cases are low in phosphorus d potassium.

Further emphasizing the import- nce of a sound soil test and sound nterpretation, Dr. Hanway com- ared two soils that test about the ame for phosphorus and potas- ium in the surface layer. However, hey differ widely below plow depth. The Carrington soil produced a hay yield increase of 1.3 tons when 600 pounds of 0-20-0 were added. The same 0-20-0 application on the Weller soil boosted the hay yield by only 0.4 ton. Potash fertilizers behaved about the same. The difference in these soils was the subsoil, which was not reflected in the test of surface soil.

Dr. L. M. Thompson, who heads farm operations said that Iowa soils contain about 4,000 lb. nitrogen an acre to plow depth. But 99% of it is tied up in organic matter. When Iowa land came out of virgin sod, the organic matter released plenty of nitrogen. Now, however, most Iowa soils show need for nitrogen because the nitrogen in organic matter now doesn't break loose fast enough to meet the needs of the crops.

Dr. Thompson explained the nitrogen forms in the soil—the nitrogen held in the ammonium form on the clay crystals and the nitrate form that moves freely in the soil solution. Plants are able to absorb both, he said. However, in moist, warm soil, the nitrifying bacteria of the soil quickly convert the ammonion nitrogen to nitrrate, which is subject to leaching with soil water.

This, he pointed out, is the basic reasoning behind the recommendation that fall-applied nitrogen fertilizers be held off the ground until the temperature drops below 50 degrees. Above that temperature, bacterial activity is high-enough to convert much ammonium nitrogen to nitrate, which may be leached before the crops can use it.

Phosphate remains in the soil, according to Dr. Thompson. About half of the soil's supply is carried in organic matter and half in mineral, with only small amounts available at any one time.

He emphasized the equilibrium of phosphorus in the soils. As available phosphorus is used by plants, more becomes available. But that is generally a slow process that doesn't keep up with phosphorus use by a normal crop rotation. The equilibrium goes the other direction, too. Available forms of phosphorus applied in fertilizers can be shifted into unavailable forms.

Potassium is abundant in Iowa soil—the average acre containing about 40,000 lb. in the surface soil. Yet, according to Dr. Thompson, very little is available to plants at one time.

The role of fertilizer elements in plant nutrition was the subject for Dr. George Stanford's talk. He explained the interrelationship of nitrogen and phosphorus in the formation of protein compounds in plant growth. He showed deficiency symtoms of corn and legumes to the three major fertilizer elements. Nitrogen and potassium, he said, are clear cut and can be identified, but phosphorus deficiency does not show itself clearly. Deficiency symptoms, he added, are of little practical value since plant performance is hindered long before recognizable signs appear on the plants.

Two extension men and a researcher led the short course group through the "why's and where's" of use of nitrogen, phosphate and potash in Iowa.

Nitrogen fertilizers will increase corn yields in most of Iowa, according to Extension Agronomist Dr. E. R. Duncan. He warned, however, that there are not many of Iowa farmers who have both climatic conditions and the managerial ability to consistently top corn yields of 100 bu. The Iowa recommendations, he added, are pitched toward the middle ground—for the farmer who is willing and able to work toward 70- to 75-bushel averages.

AT IOWA MEETING—More than 500 fertilizer dealers and salesmen registered in for the seventh annual Iowa State College Fertilizer Short Course at Ames Jan. 18. Top photo shows R. M. Vifquain, Iowa State College, registering (from left) E. A. Brown, a farmer from Avoca, Iowa, M. W. Martin, Farmers' Fertilizer, Inc., Hancock, Iowa, and Grant Bramel and Charles Sproul, Quaker Oats Co., Fort Dodge, Iowa. In the center three fertilizer men are shown with Lloyd Dumenil, research agronomist. From left are Robert McFerson, American Agricultural Chemical Co., Fulton, Ill.; Mr. Dumenil, Elmer Eggiman, Shriver-Van Horn, Jefferson, Iowa, and William Mitchelson, Spencer Chemical Co., Minneapolis. Below are four agronomists who shared the platform for the symposium on experimental results and practical applications at the final session of the short course. From left, they are H. R. Meldrum, Dr. John Pesek, Ray Nicholson and Lloyd Dumenil.

Nitrogen fertilizers are available in more kinds and forms than any other element, Dr. Duncan pointed out. "There's plenty of room for lots more nitrogen to be sold in Iowa," he concluded.

Iowa recommendations on phosphate use are moving from applying it on the oats and legume seeding to putting it on for corn, according to Research Agronomist Lloyd Dumenil. He said this change fits better in the cash corn areas and the corn-hog areas because it gives quicker returns.

A problem has come up in some cases, Mr. Dumenil reported, where farmers have applied nitrogen only to their corn, omitting extra phosphate. He cited a north-central trial in which these yields were recorded on corn:

No fertilizer	24 bu.
180-0-0	31 bu.
0-60-60	16 bu.
180-60-60	74 bu.

Fall application, plowed under in the fall, Mr. Dumenil added, has pushed corn yields 4 to 7 bu. beyond those where the same amount of phosphate was applied broadcast in the spring on fall-plowed ground. That increase, he added, probably came mostly from placement difference between the plowed-down and spring broadcast, disked-in.

"Adequate potassium is one of the foundation stones in getting efficient crop production," said Extension Agronomist Joe Stritzel. In general, about half of the state's soils are well supplied, with part of the remainder generally testing low and the rest testing in the me-

(Continued on page 19)

INSECT, PLANT DISEASE NOTES

North Carolina Looks Back on 1954's Pests

RALEIGH, N.C.—Insect conditions in the state of North Carolina in 1954 have been summarized by T. B. Mitchell. He reports that during the year, four injurious species have been found in the state for the first time. They were the apple seed chalcid (Torymus druparum) which was found to be generally distributed through the mountain fruit-growing area; tomato russet mite (Vasates lycopersici), located in Wake and Burke counties; a ground pearl (Eumargarodes laingi) found infesting various grasses and a wax scale (Ceroplastes ceriferus) found on camellia plants in Brunswick and Stanly counties.

Corn earworm (Heliothis armigera) was prevalent throughout the summer in the coastal plain counties; the fall armyworm (Laphygma frugiperda) appeared at various times from mid-July to mid-October; and spider mites (chiefly Tetranychus bimaculatus) occurred in many scattered areas, injuring apple, tomato, cotton and peanuts. Outbreaks of cutworms occurred in the spring, with the black cutworm damaging corn and tobacco and the variegated cutworm severely damaging cabbage, corn, tobacco and oats in some mountain communities.

The pale-striped flea beetle (Systena blanda) did slight damage to corn, cotton and tobacco in the spring, while the stalk borer (Papaipema nebris) caused some injury to corn and tobacco in Haywood and Madison counties. The lesser cornstalk borer (Elasmopalpus lignosellus) became prevalent over eastern areas in late summer.

A wireworm (Melanotus communis) caused some damage to corn and cabbage in both the mountain and coastal counties. Grasshoppers, chiefly Melanoplus femur-rubrum, caused some injury to pastures, clover and lespedeza.

In addition to damage from some of the general pests, corn suffered some injury from billbug, chinch bug, white grub, corn leaf aphid, corn sap beetle, corn flea beetle, bladeworm, sod webworm, corn blotch leaf miner, corn root aphid, and southern cornstalk borer.

The European corn borer (Pyrausta nubilalis) first became evident in late May and June in the northeastern counties, infesting potatoes, some fields being rather heavily infested, but controls in general adequate. Later generations were found in corn with populations higher near previous potato plantings. Populations in the western counties known to be infested were very light, with specimens or activity very hard to find.

In stored corn, reports indicate that infestation of rice weevil (Sitophilus oryza) is lighter than last year. As usual, early maturing hybrids more heavily infested than late varieties. Angoumois grain moth (Sitotroga cerealella) was infesting 5% of the ears of field corn in Hoke, Warren and Wilson Counties, early in October.

In tobacco, hornworms (Protoparce sexta and P. quinquemaculata) seemed less abundant than last year and much less abundant than in 1952. The highest count of eggs and small larvae was 1 per 3.5 for the season, with most counts very much lower than this. The budworms (Heliothis virescens and H. armigera) were also hard to find until late in the season when they became abundant on the suckers and seed pods of stalks still standing.

Tobacco flea beetle (Epitrix hirtipennis) was generally distributed throughout the season, beginning with the plant beds. In the Piedmont some slight damage was done. Green peach aphid (Myzus persicae) also failed to develop in injurious numbers, apparently checked by natural control factors.

A tree cricket (Oecanthus quadripunctatus) caused some damage in Columbus, Warren and Wayne Counties by ovipositing in the mid rib of the lower leaves. These egg punctures averaged 1 per leaf in some fields. Vegetable weevil (Listroderes costirostris obliquus) occurred in small numbers in some plant beds, and later some damage to newly-set plants in a few fields, but injury was not extensive.

First reports of boll weevil (Anthonomus grandis) received first of June, and presquare counts for successive weeks in June indicated populations of 1.85/100 plants (694 per acre), 3.7 (1388 per acre), 3.5 (1313 per acre) and 5.6 (2100 per acre). Square counts indicated the following percentages of infestation through July and August:

Week	Treated	Untreated
June 28	7.9	19.2
July 5	5.0	23.2
July 12	7.4	25.2
July 19	10.0	28.3
July 26	14.6	37.0
Aug. 2	18.3	51.6
Aug. 9	24.5	51.9
Aug. 16	11.7	58.8

Prehibernation counts early in October indicated an average population of 7,600 weevils per acre, although the count in some fields reached about 22,000 per acre. Bollworm (Heliothis armigera) occurred in many fields, reported as early as second week in June, but no serious damage until late August when 20-25% injury reported in Halifax County. Insecticide applications apparently prevented populations from building up.

Two-spotted spider mite (Tetranychus bimaculatus) did considerable damage in a few fields.

The cotton aphid (Aphis gossypii) became abundant in some fields in early June, but populations soon declined from activity of coccinellids and other natural factors. Late in August, a county-wide infestation was reported from Jackson County.

In alfalfa most serious damage was by variegated cutworm which completely destroyed a number of fields in Haywood County during May. The meadow spittlebug (Philaenus leucophthalmus) occurred in many fields in the Piedmont region during April and May, but population levels not high and injury only moderate. Leafhoppers (chiefly Empoasca fabae) were abundant from midsummer on.

Peanuts suffered moderate damage from tobacco thrips (Frankliniella fusca). Southern corn rootworm (Diabrotica undecimpunctata howardi), due to dry weather, caused only moderate damage this year, while damage from lesser cornstalk borer was more severe than in any previous year on record, causing heavy damage to pods in a few fields.

Leafhoppers were responsible for moderate to heavy damage in some fields. In wheat, oats, barley and rye, spotted outbreaks during spring by armyworm (Pseudaletia unipuncta) caused the most serious damage, not only directly to these crops, but to lespedeza planted as a cover crop along with the grain, this being a complete loss in many fields. Variegated cutworm invaded fields of oats adjacent to infested alfalfa fields in Haywood County and did much local damage.

Forest Insect Survey Procedures Described

With tremendous spray programs slated to be carried out in 1955 for control of various insects attacking huge forest areas in both the U.S. and Canada, it is interesting to look into the procedures carried on in forested regions to determine the need for control measures.

A report in the Jan. 21 issue of "Cooperative Insect Report" published by the Plant Pest Control Branch of the U.S. Department of Agriculture, gives a glimpse into the background of such procedures in an article by H. B. Peirson.

He says that tremendous losses of spruce and fir in Maine following a spruce budworm outbreak in 1921, prompted the state of Maine to appoint a forest entomologist. Work was started in training forest fire wardens throughout the state on ways of reporting insect conditions in their districts. During the next three years, all kinds of helps were published and a forest-type map of the state was compiled by the fire wardens to be used in forest insect work.

It became evident, however, that outbreaks did not spring up simultaneously over wide areas as was thought, but almost invariably started as small local outbreaks gradually spreading out over wider areas. This brought out the necessity of locating outbreaks in their early stages where economical control could be performed to best advantage.

The office of State Entomologist was established in 1929, Mr. Peirson reports. Additional assistance made it possible to spend much more time instructing the fire warden force who were showing real interest in the forest insect program.

In 1938 the fire wardens sent in over 450 reports on European spruce sawfly conditions alone. A forest insect laboratory to handle collections from the field was constructed at Augusta in 1939 and a new method of collecting by beating insects from the trees with a pole onto a six by nine foot sheet of unbleached cotton was started. Mailing cans and report blanks were furnished each warden with the sheets. Insects collected in this manner were put in the can and mailed to the laboratory for identification. A total of 761 collections was received in 1944.

In 1945, six part time forest insect rangers were appointed, each having a district of about 2,500,000 acres to cover. These rangers supplemented the insect detection work of the fire wardens by getting into unfrequented areas and carrying on the detection work during fire danger periods when the wardens were not available. By 1950 the collections reached over 3,000 per year and by 1953 reached slightly over 5,000. An effort is made to make collections, or observations, in every township in the State each year. The rangers also help instruct the fire wardens.

Approximately 210 permanent sample plots are examined each year to check on the increase or decrease of specific insects. Special collections by counting the number of larvae on definite length twigs, the number of scales per square foot of bark, or the percentage of crown affected by borers are carried on by the insect rangers to follow definite variations in insect populations.

During July and early August, twenty-one light traps scattered through the forest area of the State are run to pick up any flight of moths into the State and to check on local build-ups. Most of the State is flown over by the entomology staff to pick up and map in from the air any outbreaks that might have been missed on the ground. This is becoming an increasingly important phase of the work. Planes are also used to take the rangers into the more inaccessible areas, saving many days travel.

Schools for the wardens and rangers are held each year at the beginning of the season. Each warden has to make eleven collections during the season as part his job. Every collection received acknowledged and the collector notified as to what insects were present in the collection. This has helped materially in keeping up interest.

Every two years a school is held for foresters on insect and disease problems and methods of detection where kodachrome slides and moving pictures help bring out the important phases of the work. At the laboratory, detailed records are kept and the distribution maps compiled. Many collections are reared so as to study parasitism and feeding habits.

The forest insect detection work is making it possible to locate outbreaks before they become widespread and is gradually making it possible to foretell outbreaks several years in advance. This service together with quick control action, making it possible to greatly cut down on the tremendous losses which result from insect outbreaks. The data collected is also valuable in working up information on prevention of outbreaks through better forest management.

Effective Control of Plum Aphids Reported

BERKELEY, CAL. — Parathion, malathion, and oil nicotine as well as dormant oil and dinitro phenol can be used effectively to control a leaf curl plum aphid which has threatened to become a serious pest in California.

Harold F. Madsen and James G. Detar assistant entomologist at the University of California and farm adviser of Placer County, Cal., respectively, have completed two years of testing sprays at various times in the year and report "very effective results if spraying is performed early enough in the season. Once control has been effected, spraying is not necessary for the remainder of the year, they say.

Idaho Establishes Khapra Quarantine

BOISE — The Idaho State Department of Agriculture has established a quarantine to keep out the Khapra beetle. The new quarantine will affect all grain, seed, feed and salvage materials shipped into Idaho from portions of California, Arizona and New Mexico.

Idaho does not now have a known infestation of the Khapra beetle. The ruling provides that shipments from the quarantined areas must be fumigated or otherwise satisfy state officials that no beetles are present.

Legume Seed Shortage

WASHINGTON — American farmers must decide within the next few weeks how best to meet the problem of short supplies of red and alsike clover seed, say U.S. Department of Agriculture agronomists. The agronomists report that the seed supply of the two legumes is the smallest in years, amounting to only 80% of the 1943-52 ten-year average. Reduction in seeding rates offers one solution to the problem, explain the agronomists, especially if coupled with good seeding methods along with proper liming and fertilizing.

rasshopper Buildup Expected Minnesota, Aircraft and round Sprayer Meeting Told

T. PAUL — Indications point to a nite grasshopper build-up in Min- ota, especially in the central area the state. This observation was le to over 100 registrants at the ual Aircraft and Ground Spray- Short Course Jan. 24-25 at the versity of Minnesota. Historical erience rules out the likelihood of 955 infestation in northwestern nesota by the armyworm. How- , armyworm larvae were found ost areas of northern Minnesota, as reported.

Another feared insect, the corn er, will probably confine his at- ks in 1955 to southwestern Min- ota, a heavy corn-raising area, was predicted.

oderate to heavy defoliation by forest tent caterpillar is indi- d for an area along the eastern ier of the state, north of the neapolis-St. Paul region.

r. R. S. Dunham, professor of nomy at the University of Min- ta, emphasized the sensitivity of and flax to chemical weed con- s. Oats are more tolerant of MCP of 2,4-D, permitting the use of b. per acre, he said. The slightly er cost of MCP is more than off- if only one extra bushel of oats aved, he said.

CP was also recommended for d control in flax by Dr. Dunham. advised against spot spraying in even though weed infestation is ally not uniform. It is better to y the whole field, he suggested. x should be sprayed with MCP 2,4-D) as soon as there is suffi- t emergence of susceptible weeds make spraying practical, but be budding of flax, he advised.

praying with 2,4-D to give com- e and early control of annual ds in corn was recommended by Dunham. The amine formulation preferred. Corn should not be ayed when it is growing rapidly during the period from two weeks re silking until the silks are dry e the latter treatment may re- in seed reduction. It is also best wait until the corn is up about days, he said.

Dr. Dunham urged sprayers to t a five-day weather forecast be- re working on corn because corn lks are most brittle during the e-week period following spraying d wind can do the most damage that week.

r. J. W. Butcher, assistant state omologist, reported on prospects armyworm, grasshopper and corn er infestations. He cited a large rease in the jack pine budworm north central Minnesota and the sibility of this insect increasing. spruce budworm, well-known in nada and eastern U.S., has also eared in northeastern Minnesota state forests. The larch sawfly is eatening 500,000 acres of worth- le tamarack in Minnesota, Dr. tcher stated.

r. Butcher said one of the major ficulties in achieving proper effec- eness through chemical control of ects, especially of grasshoppers, is reluctance of the farmer to do thing about salvaging his crop il the catastrophic stage is ched. Farmers often do not realize w much damage really is caused grasshoppers and the corn borer, added.

Wireworm control with heptachlor dieldrin (2-4 lb. per acre), aldrin lb. per acre) and chlordane (4- b. per acre) was outlined by Dr. K. Cutkomp, department of ento- logy, University of Minnesota. To good wireworm control these micals should be tilled under. The same treatment can be used for cutworms but it is not so important to have the chemicals underground as cutworms come to the surface. Parathion is still recommended for the pea aphid for aerial application although progress is being made on two or three new insecticides for this purpose, it was stated.

The use of DDT for controlling flies is still practical in many cases where flies have not developed resistance, Dr. Cutkomp stated. He advised using methoxychlor, lindane and malathion for spraying dairy barns and DDT and diaznon for beef and hog barns. For bait type control of flies he suggested malathion as well as diaznon and dipterex.

A speaker both days of the short course was Dr. Henry Hurtig, well known Canadian insecticide authority, who is on the staff of the Suffield experimental station, Ralston, Alberta. He detailed some of the research programs that go into developing new methods of applying insecticides. He used colored slides to show methods of determining the effectiveness of insecticides on certain Canadian forest insects.

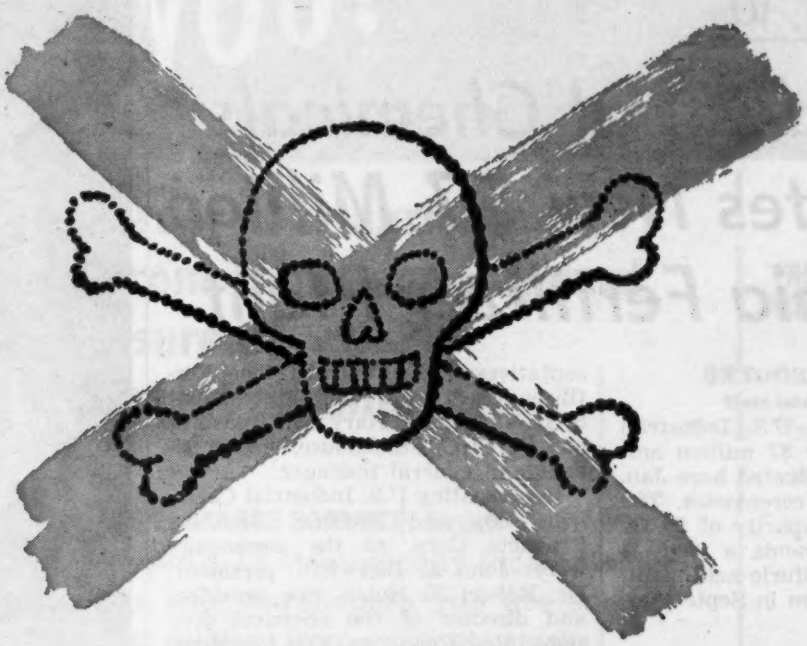
Dr. T. L. Aamodt, state entomologist and director, division of plant industry, presided as short course chairman, and called attention to the constant need of safety in handling of insecticides and herbicides. Proper handling, proper labeling and careful adherence to directions will prevent unfortunate accidents, he explained.

The Jan. 24 program was devoted to a discussion of the state's 1954 aerial and ground spraying statistics. S. J. Bjerken, supervisor, weed inspection, division of plant industry, discussed new laws and the afternoon program included calibration and sprayer care, advantages of ground spraying in insect control, residential spraying—including insect and lawn weed control — and spraying laws. The latter discussion was led by J. R. Sandve, supervisor of community pest control service.

A review of the 1954 control programs from the industry's viewpoint was presented by T. M. Ritchie, Hercules Powder Co., Chicago; B. Finch, Thompson - Hayward Chemical Co., Minneapolis, and J. L. Gunkelman, J. L. Gunkelman & Sons, Fargo, N.D.

SOUTH CAROLINA TONNAGE

CLEMSON, S.C.—Fertilizer distribution in South Carolina during the last six months of 1954 totaled 132,604 tons, according to a report by B. D. Cloaninger, head of the state Department of Fertilizer Inspection and Analysis. The total included 94,763 tons of mixed fertilizers and 37,841 tons of materials.



Attention Formulators of

aldrin and dieldrin

The "Skull and Crossbones," "POISON," "Antidote," and "Call a Physician Immediately" designations *are no longer required* on labels of products containing less than 60% aldrin or dieldrin. Restrictions on formulations below 10% are milder too.

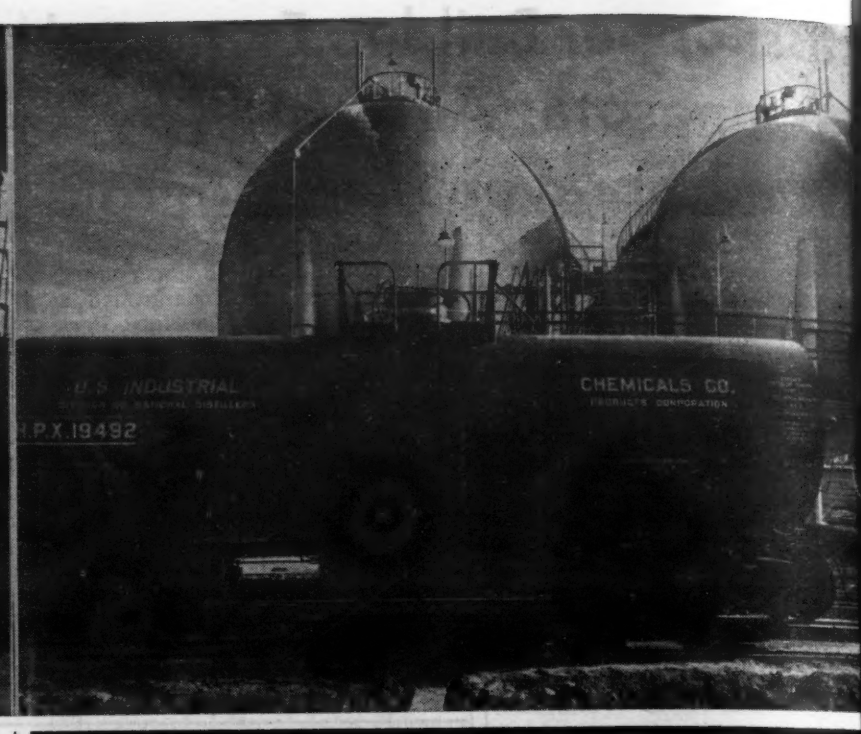
Now your aldrin and dieldrin labels can have more customer appeal! And the new, relaxed warning statements for aldrin and dieldrin products permit wider uses on farms, in homes and throughout industry.

Revise your aldrin and dieldrin labels now to include the officially accepted warning statements.

Aldrin and dieldrin formulations have achieved a new high in use and acceptance. The relaxation in classification is a vote of confidence as a response to their "good behavior" records.

For specimen labels or assistance,
contact your nearest Shell Chemical Corporation office.

SHELL CHEMICAL CORPORATION
AGRICULTURAL CHEMICALS DIVISION
Chemical Partner of Industry and Agriculture
P. O. Box 1617, Denver 1, Colorado
Atlanta · Houston · New York · San Francisco · St. Louis · Jackson, Miss.



AT TUSCOLA, ILL.

U.S. Industrial Chemicals Dedicates New $7 Million Ammonia Fertilizer Plant

By DON E. ROGERS
Croplife Editorial Staff

TUSCOLA, ILL. — U.S. Industrial Chemicals Co.'s new $7 million ammonia plant was dedicated here Jan. 21, with impressive ceremonies. The new plant, with a capacity of 50,000 tons anhydrous ammonia a year, is adjacent to USI's sulfuric acid plant, which came on stream in September, 1953.

Speakers at the ammonia plant dedication included Dr. K. D. Jacob, U.S. Department of Agriculture, Beltsville, Md., who spoke on the importance of fertilizer nitrogen to midwestern agriculture.

Present to accept the first tank car for direct application were representatives of the Central Illinois Fertilizer Co.; C. R. Ware, president; S. L. Victor, secretary and treasurer and Percy C. Stackhouse, vice president and general manager.

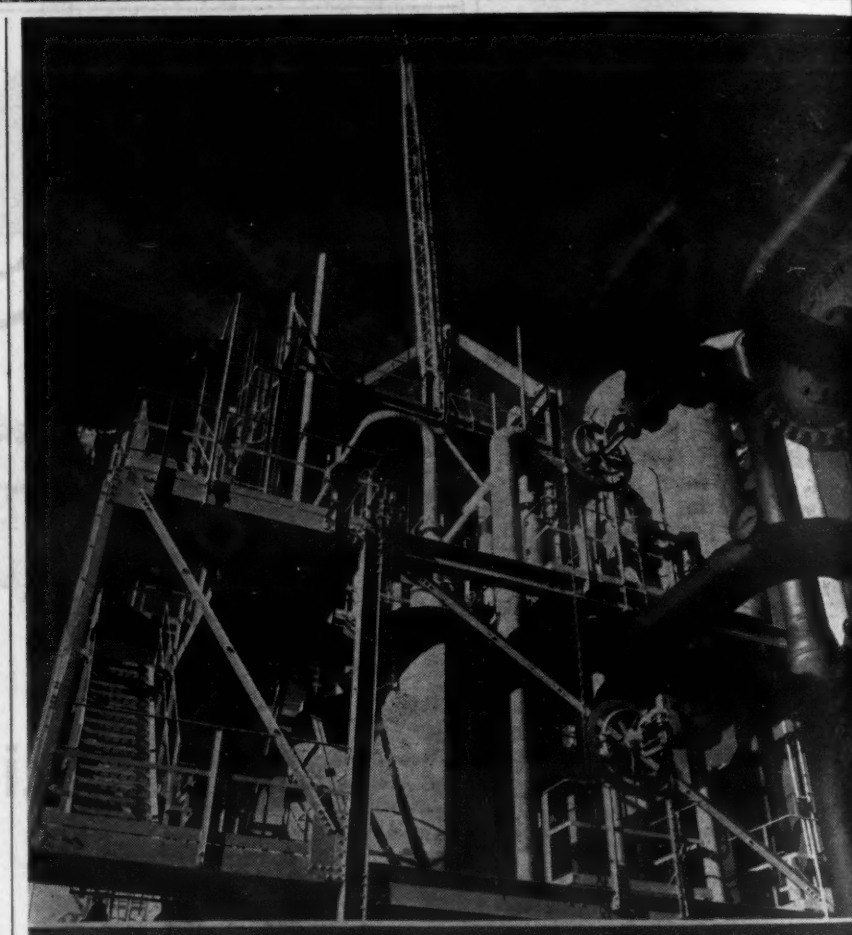
Representing U.S. Industrial Chemicals Co., and National Distillers Products Corp. at the ceremonies were: John E. Bierwirth, president; Dr. Robert E. Hulse, vice president and director of the chemical divisions; Roy Coppedge, vice president; Lee A. Keane, vice president, U.S. Industrial Chemicals Co.; Warren Johnson, manager of chemical sales; Lawrence C. Byck, Jr., assistant to manager, chemical sales.

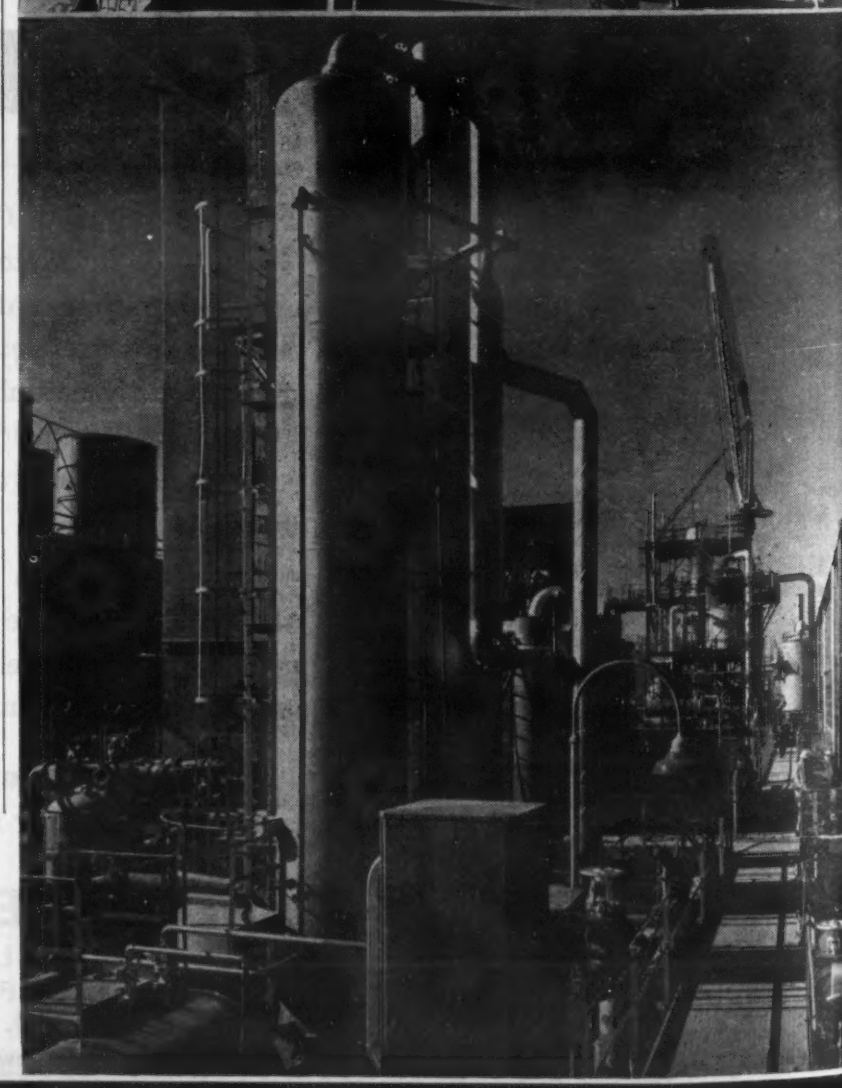
The new ammonia plant's being situated adjacent to the USI sulfuric acid plant makes two of the most important chemicals for agriculture available from a single plant site. Both plants were located at Tuscola to integrate with National Petro-Chemicals Corp., a joint enterprise of National Distillers Products Corp. and Panhandle Eastern Pipeline Co. Natural gas from Panhandle is the basic raw material for the widely-used chemicals ethyl alcohol, ethyl chloride, ethyl ether, polyethylene.

As an example of planning for efficient production, by-product hydrogen from Petro flows to USI for ammonia manufacture, and also to the ethyl chloride process. Spent sulfuric acid from the alcohol unit is returned to the USI plant from which it came. The plant is located at the junction of three railroads and two main highways at Tuscola, which the company says provides flexibility and economy in transporting materials.

The plant includes facilities for the conversion of part of the ammonia into nitric acid which is transformed into ammonium nitrate by reaction with more ammonia. In turn, the ammonium nitrate is used in the manufacture of nitrogen solutions

(Continued on page 18)





AT NEW USI PLANT—From upper left, clockwise: compressor room containing 11 compressor units; loading and storage dock, with hortonspheres in background; ammonia synthesis area, catalyst convertor where hydrogen and nitrogen are made into ammonia; air purification, nitrogen separation and hydrogen scrubbing plant at the Tuscola installation.

SHOW THEM HOW TO SPRAY CROPS
BETTER and CHEAPER

with THE HAHN HI-BOY
SELF-PROPELLED,
HIGH-CLEARANCE SPRAYER
Kills Insects and Controls Weeds
HERE ARE 4 BIG REASONS WHY THE HAHN LINE'S A PROFIT LINE:
1. ACCURACY—Bullseye accuracy saves spray, placing it right where it's needed and nowhere else.
2. DEPENDABILITY—Rugged construction provides for easier, trouble-free operation.
3. ECONOMY — Speed, maneuverability, and simplicity save spraying time.
4. VERSATILITY—Every spraying need can be filled from Hahn's complete line of sprayers.
The Hi-Boy is available with 8¼ or 11 H.P. engine. Has Hahn's non-clogging, internal-gear pump, or hi-pressure piston pump.
Sell the Profit Line—Hahn Spray Equipment
Write for Complete Information
HAHN, INC.
1843 West Franklin
EVANSVILLE, INDIANA
HAHN HI-BOY
THE HI-SPEED SPRAYER

oil Improvement Group Sets Plans or Joint Meeting

CHICAGO — Round table discussions of more efficient, cost-cutting ethods of producing corn, small rains and legume grass crops and eports on the latest results of fer- ilizer research will headline the pro- ram of the annual joint meeting of idwestern agronomists and fertiliz- r industry representatives at the almer House in Chicago.

The meeting will open the afternoon of Feb. 17 and run through noon, Feb. 18. Nearly 500 are expected to attend. The meeting is sponsored by the Middle West Soil Improvement Committee.

Dr. F. W. Smith, Kansas State College, will be chairman of the meeting.

The Feb. 17 session will open at p.m. with a welcome to the soils men and visitors by H. S. Vorhes, MWSIC president.

A. J. Attoe, University of Wisconsin, will be the lead-off speaker with report on "Sure Fire Alfalfa Production." John MacGregor, University of Minnesota, will follow with discussion of "Fall vs. Spring Application of Nitrogen Fertilizer."

John R. Webb, Iowa State College, will report on the "Significance of Water Solubility in Phosphatic Fertilizers."

"The Effect of Fertilizers on the Establishment and Maintenance of Legume-Grass Mixtures" will be the subject of a discussion by Richard Swenson, Michigan State College. John Fallon, University of Missouri, will report on "MWSIC-sponsored research in Missouri."

M. B. Russell, University of Illinois, will discuss "Potentials of Corn Belt Crops."

Final speaker on the Thursday program will be Russell Coleman, president of the National Fertilizer Assn., whose subject will be "Fertilizer Economics in a period of Surpluses."

The theme of the Friday morning program will be "Efficiency in Crop Production." Beginning at 9 a.m. will be a discussion of "Efficient Tillage Practices."

A symposium of "Efficient Corn Production" is scheduled next, with H. J. Mederski, Ohio State University, reporting on the eastern Corn Belt, and E. R. Duncan, Iowa State College on the western Corn Belt.

"Efficient Wheat Production" will be the subject of another panel participated in by soils specialists from three different wheat producing areas. S. A. Barber, Purdue University, will report on "Soft Winter Wheat," Robert A. Olson, University of Nebraska, on "Hard Winter Wheat," and E. B. Norum, University of North Dakota, on "Spring Wheat."

The Friday morning program will conclude with a report by Paul Burson, University of Minnesota, presenting the agronomists' suggestions for recommended fertilizer grades and ratios in the coming year.

For two days preceding the joint meeting, the agronomists will attend a series of meetings of the North Central Soils Research Committee at the Palmer House in Chicago. As was the case last year, soils extension men from each of the 13 Corn Belt states have been invited to join the research men in attending the joint meeting.

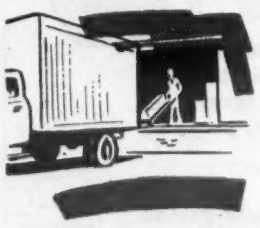
Z. H. Beers, executive secretary of the Middle West Soil Improvement Committee, pointed out that over the years the February meeting has been steadily expanding in scope, subject matter and attendance.

What the LARGEST Chemical Company of its Kind in the World Can do for YOU!

When you order your agricultural chemicals from Thompson-Hayward, you can be sure of FOUR important advantages.

1. DEPENDABLE SERVICE. From Thompson-Hayward's 18 strategically located sales offices and warehouses you are sure of prompt delivery from adequate stocks.

2. SOUND ADVICE: The Thompson-Hayward office nearest you is staffed with agri-chemical experts who are familiar with local conditions and what products will best serve you and your customers.



3. ONE-SOURCE SUPPLY. Every agricultural chemical requirement can be met by Thompson-Hayward's complete line. Buying from one source saves you time in ordering and expense in shipping.

4. THOMPSON-HAYWARD KNOW HOW is based on 37 years of experience serving agriculture. You can bank on the quality of all ingredients and that every T-H product represents the latest proven advance in agricultural chemistry.

THOMPSON-HAYWARD'S COMPLETE LINE OF

WEED KILLERS
INSECTICIDES
FUMIGANTS
VITAMINS
MITICIDES
FUNGICIDES
RODENTICIDES
FEED INGREDIENTS
VITAMIN SUPPLEMENTS
TRACE MINERAL CONCENTRATES
GRAIN AND HAY CONDITIONERS
WOOD PRESERVATIVES
ANTIBIOTICS
. . . and others

THOMPSON-HAYWARD CHEMICAL COMPANY
KANSAS CITY 8, MISSOURI

PESTICIDE CERTIFICATION

(Continued from page 1)

residues likely to result from the proposed use of the pesticide.

Public Law 518 requires that registrants of pesticide chemicals obtain residue tolerances or exemptions for such chemicals by:

(1) Filing with the secretary of health, education and welfare a petition proposing the tolerance or exemption, together with supporting scientific data to establish safe residue levels.

(2) Filing with the secretary of agriculture a copy of this petition and a request to certify to HEW that the pesticide chemical is useful for its intended purpose.

The regulations issued by USDA govern the certification procedures to be followed in connection with step (2), above. They provide:

★ That requests for certification will be made in writing to the chief, Plant Pest Control Branch, Agricultural Research Service, USDA, Washington 25, D.C. Certification should be asked for only on pesticides that have been registered, or submitted to USDA for registration, as economic poisons under the Federal Insecticide, Fungicide and Rodenticide Act. Requests for certification must be accompanied by a copy of the petition for tolerance filed with the Secretary, HEW.

★ Requests for certification must be supported by reports of all experimental work done to determine the effectiveness and usefulness of the pesticide.

★ If for any reason certification is not justified in all respects, the applicant will be so informed. He can then file a request with USDA for (1) certification to the extent proposed by USDA, (2) a hearing on the proposed certification or the parts objected to, (3) both such certification and a hearing, or (4) withdrawal of the request for certification.

FEED
FERTILIZER
BRADLEY & BAKER

No Commitments Made To FDA on Sanitation

WASHINGTON—Top U.S. Department of Agriculture offiicals last week categorically denied that the big farm agency has made any commitment to the Food and Drug Administration concerning shipments of Commodity Credit Corp. wheat stocks.

It has been reported that FDA had received a letter from USDA assuring that CCC wheat shipment would be made to conform to the FDA wheat sanitation standards for interstate shipment of wheat for food purposes. Agriculture officials this week said no such assurance had been given USDA.

At the same time, the USDA spokesman said that before CCC shipped any wheat this year after the loan default take-over, USDA would make public its position regarding the FDA sanitation campaign and its standards.

BORER THREAT

AMES, IOWA—A dry spring will mean a bigger 1955 brood of corn borers in Iowa than that brooded in 1954, according to Harold Gunderson, Iowa State College entomologist.

Federal Agencies Asked to Review Commercial Work

Budget Directive Raises Question Of TVA Project

WASHINGTON — The Bureau of the Budget has instructed all federal government departments and agencies to review their commercial and industrial activities which are in competition with private business to determine how many can be reasonably ended.

Rowland R. Hughes, director of the bureau, has set down the following schedule of action under his directive: (1) an inventory of all commercial activities an agency conducts at this time and (2) an evaluation of manufacturing activities included in this inventory.

Each agency is urged to discontinue such activities unless, as shown by the evaluation, discontinuation would not be in the public interest. Agencies are also to refrain from starting commercial activities which might be competitive with private business.

The requested inventory reports are to be submitted to the Bureau of the Budget not later than April 15 and the report on valuation of manufacturing activities not later than July 15, 1955.

The Budget Bureau's announcement does not go into detailed application of this directive and it raises immediately the position of the Tennessee Valley Authority in its sales of fertilizer materials.

TVA spokesmen here say they cannot comment on the subject at this time but may have a statement within a short time, after the TVA top management at headquarters in Tennessee has an opportunity to study the directive.

The Budget Bureau excludes from the coverage of the directive activities which are of direct service to the public such as lending, insurance and the generation and sale of power. But, at the same time government agencies are instructed to keep these activities under constant review.

TVA activities are certain to be dragged into the current hot political fight over the Dixon-Yates power contract, and this obscures any firm application of the Budget Bureau's action in this field.

POTASH IMPORTS

(Continued from page 1)

evidence of dumping tended to check the imports of the East German origin potash which would have moved into the U.S. in 1954-55 at a 50¢ per unit price.

Commenting on the price policies of the East German exporters, Mr. Into read to the commission Montreal price quotations of 45¢ per unit price, indicating that if they desired the iron curtain nations could make a similar price in the U.S. and even go lower.

Other U.S. opposition to the East German Potash dumping came from the Potash Company of America, Washington, D.C., Southwest Potash Corp., New York, and Duval Sulphur & Potash Co. and the Santa Fe Railroad.

Speaking in behalf of importer interests, a spokesman for Woodward & Dickerson, Inc., Philadelphia, said that manufacturers used imports to fill unsatisfied demand and subsequently sought to develop a contention that domestic producer sales had increased.

BEAIRD ANHYDROUS AMMONIA EQUIPMENT

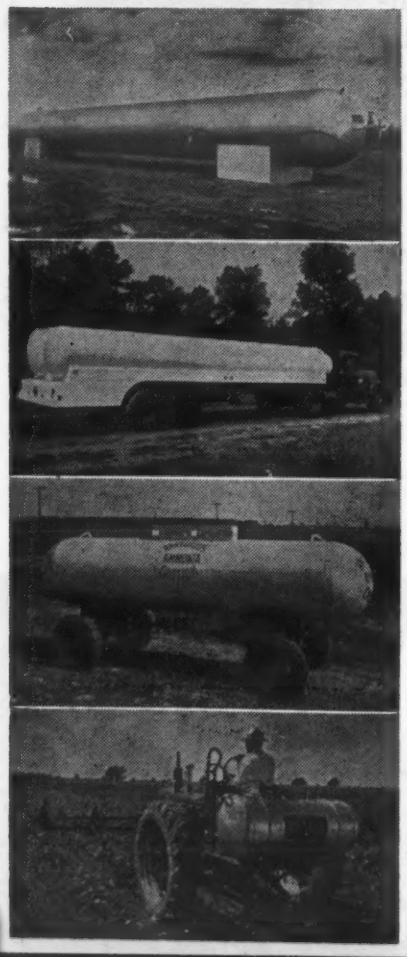
Since the introduction of anhydrous ammonia as a commercial fertilizer, Beaird engineers have worked closely with the industry to develop special equipment for handling this nitrogen-rich liquid fertilizer. Behind the Beaird line of anhydrous ammonia equipment is the experience of thirty-six years in manufacturing pressure storage vessels for the petroleum and chemical industries.

PACKAGED STORAGE INSTALLATIONS
Available on "Turn-Key" or "Install-it-yourself" basis

Now you can install bulk storage for anhydrous ammonia as a complete packaged storage plant. You may order it as a "Turn-Key" job or on an "Install-it-yourself" basis. On "Turn-Key" jobs the entire installation, including all assembly and final inspection, is handled by Beaird service engineers. On "Install-it-yourself" installations, a Beaird service engineer is available for supervision after tank has been located on foundations and is ready for piping.

Packaged storage plants may be installed with one or more tanks of the following sizes: 2,000, 3,000, 6,000, 12,000, 15,000, 18,000 or 30,000-gallon. These tanks are manufactured in our Shreveport factory and tested by X-Ray. Piping is pre-assembled to simplify field work.

Plant layout is planned to fit your individual needs and the entire installation engineered to meet state and code regulations.



PACKAGED STORAGE STATIONS—3,000, 6,000, 12,000 and 15,000-gallon. This patented Beaird development is delivered complete, ready to operate. Includes integral steel pontoon type foundations and all necessary fittings, pump or compressor and safety controls.

TRAILER TRANSPORTS—twin-tank 5,400-gallon transport. Mounted on heavy duty tandem axle assembly. Smartly designed and finished in white enamel over primer coat.

TRUCK AND TRAILER TANKS—500 and 1,000-gallon. 1,000-gallon tanks made in 41" and 46" diameters, equipped with interior baffles and meet all state regulations. Available unfitted or fitted with highest quality fittings for top, or bottom withdrawal. Hose assembly supplied upon request. Extra fill valve coupling for dual filling to cut filling time in half. Finished in white enamel.

APPLICATOR TANKS—for mounting on applicator unit or tractor. Made in following sizes: 110, 150 and 200-gallon. Available unfitted or fitted with highest quality fittings. Finished in white enamel.

Let us quote you on your requirements for anhydrous ammonia equipment.

BEAIRD
THE J. B. BEAIRD COMPANY, INC.
SHREVEPORT, LOUISIANA

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

Soil Tests Help Virginia Liquid Nitrogen Firm

Although the advent of liquid nitrogen plants in Virginia has been slower than in some states, nonetheless, use of liquid fertilizer on corn, soybeans and pastures is growing.

The late J. D. Sykes of the Nansemond Gas Co., Suffolk, Va., started the Five Points Supply Co. at Windsor, Va., because he was convinced that the use of liquid fertilizer would spread throughout the area. After his death in the fall of 1954, control of the company passed to R. Hansen of Suffolk. All fertilizer applications are done for the company by James A. Carr, a farmer who has an applicating outfit which he operates in a 40 mile radius of Windsor.

Mr. Carr says that if soil and operating conditions are ideal he can applicate liquid nitrogen on about 30 acres per day. In this area of Virginia many farmers use liquid nitrogen on 75 to 80 acres. The rate of application on corn is about 80 lb. per acre, Mr. Carr states.

Dry fertilizer on peanut acreage is used in a 0-10-10 chemical analysis for the most part in this region, while soybeans take about 2-12-12. The rate of application of dry fertilizer for both these crops is 400 to 600 lb. per acre.

Because Mr. Carr has a farm of his own and uses both liquid nitrogen and dry fertilizer on his crops, customers usually listen to what he has to say about the value of proper fertilizer. Many farmers have their soils tested by the state agriculture department, reports Mr. Carr, and they know what the state recommends. The job of the seller of fertilizer and the applicator is to get the farmer to use the recommended amounts and not try to shave quantities.

"I find, however, that Virginia farmers as a rule are tremendously interested in the fertilization program," states Mr. Carr. "They know that the right type of fertilizer will help them to produce more crops per acre, and generally they want all the information you can give them on the subject."

While many farmers are using dry fertilizer on pastures, they are also interested in applying liquid fertilizer to some pasture areas, states Mr. Carr. He believes that within a few years liquid fertilizer will be used extensively on corn and pastures.

COTTON RECORD?

PECOS, TEXAS — Farmers of Reeves County, Texas, who carved their fields out of a greasewood and yucca desert a few years ago, are claiming a record in cotton production. On less than 60,000 acres in 1954 they harvested 120,000 bales of cotton. Better strains of cotton, better use of irrigation water, heavy fertilization and rigid insect control have been responsible for the increase.

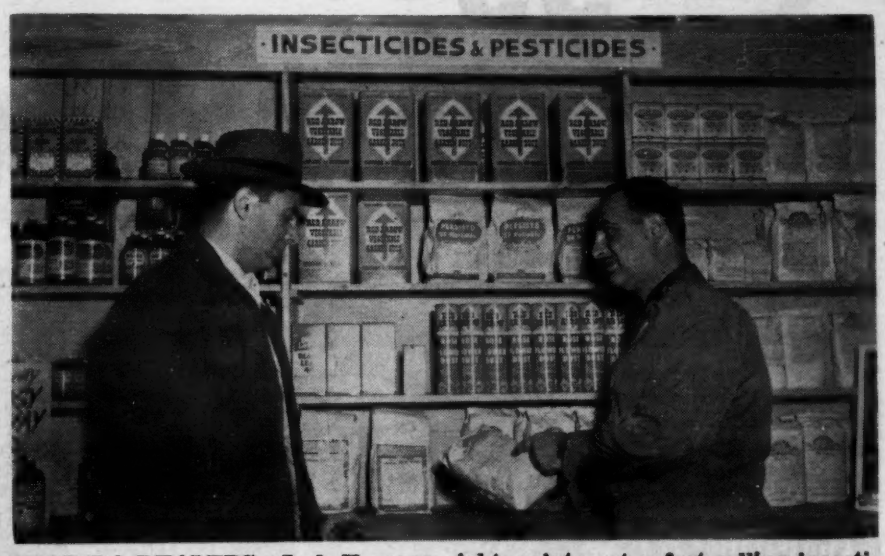
Farm Visits, Attention to Grower Needs Build Sales Volume for Florida Store

By AL. P. NELSON
Croplife Special Writer

By studying the special needs of citrus growers, Jack Kazaros, manager of the Florida Farm Supply Stores, Orlando, Fla., is able to get a large volume of business from these growers, many of whom buy in lots of up to 1,000 tons at a time. In fact, says Mr. Kazaros, 90% of the firm's fertilizer volume comes from the large growers.

Jack and his brother, Robert, constantly visit the large citrus growers and talk over their fertilizer and spray materials needs with them. The large growers, says Mr. Kazaros, usually seek fertilizer with a high organic content. Many areas of Florida soils are deficient in iron and other elements. The high percentage of acid soils in some citrus regions means the sale, too, of a lot of limestone for fertilizer dealers. Lime is applied about 1,500 to 2,000 lb. per acre for soils deficient in this respect.

The large citrus growers place their fertilizer business on bids, and they do not always take the lowest bids. The right type of fertilizer at the right time is highly important to them.



FLORIDA DEALERS—Jack Kazaros, right, points out a fast selling insecticide item to his brother, Robert. The two operate Florida Farm Supply Stores at Orlando, Fla.

The Kazaros brothers are also brokers. The firm has four trucks ready for instant delivery of fertilizer and has a large warehouse with a special loading dock to facilitate delivery.

"We sell a lot of fertilizer which never goes through our warehouse," reports Mr. Kazaros, "for we obviously could not store all of it until needed. That's where experience comes in in getting 400 to 500 tons or more at one time to the right grower—when he wants it."

Jack Kazaros was a fertilizer salesman for a large company in Florida before he and his brother launched out into their own business. This experience, which had included calling on large growers, has come in very handy now that he is in business for himself.

"Many average size dealers in fertilizer say they can't get the large grower business," states Mr. Kazaros. "The only way to get it is find out what the grower wants, when he wants it, and then see that he gets it. By working out purchasing, transportation and labor economies in the handling of big fertilizer purchases, the merchant puts himself in a good competitive position in this industry."

Mr. Kazaros points out that many citrus growers are now fertilizing their groves three times a year, fall, summer and winter. Many citrus raisers are also planting cover crops under their trees to protect the soil from too much sun, and for this practice fertilizers are also used.

Likewise, in addition to heavy applications of dry fertilizer, some grove owners are also using nutritional sprays. The two Kazaros feel that nutritional spray volume will grow considerably within the next few years.

This firm stocks practically anything in the way of fertilizers, insecticides, pesticides and equipment which the citrus grower needs. The store handles hand sprayers up to $40 and also has field power sprayers selling up to $800.

While the store has a large volume of business with citrus growers, it also does some business with homeowners on lawn and garden supplies. It also has a small stock of feeds for those who have small chicken flocks and a few hogs. Some farm hardware and equipment items also are handled.

The large retail store division is very neat and clean, with excellent well kept displays. Departments are properly lettered, thus calling the customers' attention to various products.

"While we do some newspaper and direct mail advertising," states Jack Kazaros, "our best advertising is personal contact. One of us is out visiting customers all the time, find-out out what they need and then bidding on it. The system works very well for us."

SHOP TALK OVER THE COUNTER FOR THE DEALER

By EMMET J. HOFFMAN
Merchandising Editor

Ninety per cent of all salesmen greet their customers with the remark, "What do you need today?" according to an executive of a large chain store. Rarely, he continued, does a salesman open his appeal with, "How's my product doing?" The latter happens in only 10% of the cases where he is approached by a salesman, the executive claims.

The what-do-you-need salesman typifies the order-taker, so prevalent during the past decade when the rules of salesmanship were neither learned nor applied in most cases. They weren't necessary. The how's-my-product-doing type of salesman immediately lets his customer know that he's concerned about him and that he wants him to be satisfied.

To be sure, the what-do-you-need type of salesman isn't going to escape hearing about it if the product he sells isn't doing as promised. The buyer has his rights and foremost among them is that he must get the service from his purchase that he can reasonably expect. If he doesn't get full service he will let the salesman know, no matter what approach the salesman uses on his return call.

There are many other favorable advantages in having the salesman open his talk with, "How's my product doing?"

Invariably the customer will say, "Just fine." It's a way of letting the customer reaffirm his faith in the product's quality. It's another way of saying, "I like your product." And it's almost inevitable that the customer will then add, "Put me down for the same order as last time."

Watch Trends

The speaker also had some comments about trends in merchandising.

"When you're through changing you're through," he said. "Trends run our lives," he continued in urging retailers to watch closely what the customer demands in the way of products, services, store hours and mode of shopping.

As an indication of the trend to

(Continued on page 11)

Better Selling

Richer Sales Fields for Dealers

Doing Business With Oscar & Pat

It was a beautiful mid-January day. The sun was bright; a thaw was on. Black asphalt and cement streets and highways showed wet between high snowbanks. At noon, it seemed as if sunny spring could not be far away—but the old timers knew differently. They had been snowbound many times in February and March.

"Hey, Oscar," kidded bristly faced Red Carlson as he came in to pay a fertilizer bill, "it's all that fancy airplane advertisin' that makes your fertilizer so high priced. Since when did you guys get so high toned you couldn't stick to good ol' newspaper advertisin'."

Oscar frowned, although the sight of the farmer's check and the feel of the yellow paper in his fingers sent a warm feeling through him. "Airplane advertising! Ach, we aren't doing any of it."

"To heck you ain't!" said the farmer. "A guy's been sailin' all around the county with your air ads. Listen, I hear him again. Come outside."

Surprised, apprehensive and also puzzled, Oscar rushed outdoors with Red Carlson, forgetting his coat. Even Tillie Mason, the plumpish bookkeeper, was so curious that she, too, went out on the loading platform.

"Look, there he is," pointed Red Carlson.

And Oscar saw a small plane leisurely going over the town with a long banner waving behind it in the still, sunny air. Copy on the banner said, "Order fertilizer now." And underneath this first line of copy, more words said . . . "From Oscar and Pat."

"I see the darn plane circling west of my farm just before I came to town," said Carlson. "Guess it's been all over the area, all right. Sure gets your attention, doesn't it? Boy, here's where the price of fertilizer goes up."

Oscar choked. "I don't know anything about it," he snorted "That—that, Pat must have . . ." He broke off and went back hurriedly into the salesroom.

"Oh, my," groaned Tillie. "Now there'll be another fight when Pat comes in. I wish, I wish—"

"Gee, I'm sorry," Red Carlson said, rubbing his whiskers. "I didn't know I was stirrin' up somethin'. I thought Oscar knew about it. Me and my big mouth. My wife always says I talk too much. Maybe I jest better talk to my cows after this, and ferget about people. Cow's feelin's don't get hurt."

Inside, Oscar was pacing back and forth when Tillie came in. "That Pat," he stormed, "he spends money like a politician before election. How can this go on? Here I try and try to cut expenses and he does stuff like this. Why I just got in enough cash last week to pay expenses, so we wouldn't have to borrow from the bank. But does Pat appreciate that—no! He goes right out and starts spending again—and for airplane advertising!"

"B—but we're 10% ahead in dollar volume over last year," Tillie said timidly. "And we're making 1% more profit at least."

Oscar groaned. "That's just it. I can't understand it. We spend and spend like drunken sailors and still we make money." He stopped short, his eyes brightening. "We make more profit because I cut expenses so much," he said. "That must be it."

But he could not help remarking, when Pat came in, "Well, how much is the bill?"

"The bill for what?" asked Pat, a little puzzled.

"That—that airplane advertising!" snapped Oscar, back in his cost cu ting mood. "Wouldn't it be cheape to buy an airplane and use it, rathe than—than hiring it done?"

"Oh," said Pat, "so you saw tha advertising. What did you think o it?"

"I think it's lousy, and I don think we need it," Oscar said un expectedly. "I think we should cu down on advertising, and if we spen anything at all, to stick to a sma newspaper ad once a week."

Pat shoved his felt hat back o his forehead, and his blue eyes caugh a cold glint. "Now wait a minut Oscar," he said. "How much do yo suppose that airplane advertising costing us?"

"I don't know," Oscar said icil "Maybe $200. Those pilots like t spend lots of money."

Biggest Campaign is Now Selling Your Fa

"So that's it," Pat said. "Well, Oscar, that airplane advertising isn't costing us a cent."

Oscar dropped his pencil and stared at Pat. "Not a cent," he said. "What's the joke?"

"There is no joke," Pat said coolly. "You always pop off about me spending money like a drunken sailor. If you'd wait until I have a chance to explain you'd save yourself trouble. Chick Means, the airplane pilot who does so much dusting in this area, wants to advertise. So I told him that if he had a big sign made I'd post it in our salesroom for all farmers to see. Then they'd know who to call when they want airplane dusting service.

"I also lined up four other fertilizer dealers in neighboring counties who will post Chick's signs in their store in return for a little sky advertising. Those guys will have to pay for their sky sign materials, however, but not me. I get ours free because I got the additional advertising outlets for Chick."

Oscar was silent for a moment, then he said: "Did you collect those bills I put on your desk yesterday?"

Pat flushed. "No, I was too busy working on the airplane deal," he explained. "I'll get after those bills tomorrow."

"Huh," Oscar said. "It would be better to collect the bills first and work on the airplane idea second."

Pat said nothing and studied the delinquent account list before him. Peace settled over the office.

Texas Farmers Boost Cotton Yields

ABILENE, TEXAS — Texas is growing more cotton on fewer acres. The ten year average from 1942 to 1952 was 182 lb. lint cotton per acre; the 1953 average was 233, while the estimated 1954 average is 242 lb.

While new irrigated areas in the Trans-Pecos and El Paso have helped some, the greatest increase has come from better farming methods, which include improved seed, new tillage methods and more liberal use of fertilizer and insecticides.

These newly established areas have an average of 721 lb., which helps offset some of the drouth-stricken counties where it was as low as 70 lb.

Southern Fertilizer Safety Conference Set for New Orleans

RICHMOND, VA.—Curtis A. Cox, chairman of the Fertilizer Section of the Southern Safety Conference, has announced the program topics and guest speakers for the group's meeting to be held at the Jung Hotel in New Orleans, Feb. 28-March 1.

Mr. Cox, assistant manager of the manufacturing department for Virginia-Carolina Chemical Corp., Richmond, Va., is also vice chairman of the Fertilizer Section of the National Safety Council.

The Fertilizer Section of the Southern Safety Conference will include two afternoon sessions. The program:

Feb. 28—"Safety — A Sound Investment," A. B. Pettit, supervisor, industrial health and safety, Davison Chemical Co., Division of W. R. Grace Co., Baltimore, Md.; "Report on Activities of Safety Organizations in the Fertilizer Industry — National, Regional and State," Vernon S. Gornto, manager Insurance Department, Smith-Douglass Co., Inc., Norfolk, Va.; "Interesting the Foreman in A Safety Program," John S. Mark, director, Iowa Farm Supply Co., Des Moines; "Workable Small Plant Safety Program," Harold R. Krueger, production manager, Snyder Chemical Co., Topeka, Kansas; question and answer period — Leader: F. Wayne High, manager of operations, Baugh Chemical Co., Baltimore.

March 1 — Report of nominating committee and election of officers; "I Believe," T. J. Clarke, chairman of the Fertilizer Section, National Safety Council; "Handling Ammonia Solutions Safely," Charles L. McDaniel, technical service supervisor, Lion Oil Co., El Dorado, Ark.; "Safe Blasting Practices," A. L. Foster, superintendent, International Minerals and Chemical Corp., Spartanburg, S.C.; discussion and observations from the floor.

RANGE IMPROVEMENT

COLLEGE STATION, TEXAS — In a year-end summary of range work in Texas, A. H. Walker, extension range management specialist, says 3,974,451 acres of grassland underwent some type of land improvement during the year.

gn Fertilizer History
ur Farm Customers...

Just about every time farmers turn the pages of a farm magazine this year of 1955, they'll be turning to full page advertisements of one or more ARCADIAN® products. ARCADIAN UREA 45 — Nitrogen Solutions for Direct Application — *American* Nitrate of Soda — A-N-L® Nitrogen Fertilizer and others. Full pages and half pages that smack the reader right in the eye with outstanding advantages of these ARCADIAN Fertilizers that are as modern as tomorrow's agriculture. These selling messages will be seen by millions of farmers every month of the fertilizer season. Some 1500 local newspapers will also carry ARCADIAN advertising urging farmers to buy.

All this, plus continued radio campaigns on big stations, and small stations, too, are putting ARCADIAN products in the minds of your customers — to move more ARCADIAN products. As an ARCADIAN Distributor you can move them at a profit through your place of business.

This year it will pay better than ever to stock and sell ARCADIAN Fertilizers getting this intensive advertising support. Get your full quota of aids to help you sell easier, faster, more. The time is ripe — the time to stock ARCADIAN is right now. For full information, fill in the coupon below.

Arcadian®

NITROGEN DIVISION ALLIED CHEMICAL

☐ **UREA 45 Fertilizer**
45% Nitrogen Pellets

☐ **12-12-12 Granular**
Fertilizer

☐ **American Nitrate of Soda**
Improved Granular

☐ **A-N-L® Nitrogen Fertilizer**
Pelleted

Nitrogen Solutions

☐ Non-pressure
URAN* and FERAN*

☐ Low-pressure
NITRANA® and URASOL*

*Trade-Mark

NITROGEN DIVISION Allied Chemical & Dye Corporation
40 Rector St., New York 6, N. Y.

Please provide me full information on products I have checked in the box at the left.

☐ Please send me facts on advertising coverage in my area.

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

OVER THE COUNTER

(Continued from page 9)

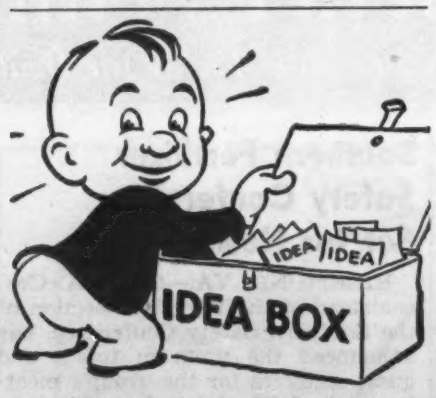
self-service in stores, he predicted that in 10 years 80% of the nation's grocery business will be done by supermarkets as compared with 48% now at the present time.

There is a notable trend toward self-service and retailers ought to be aware of it to take full advantages of its opportunities.

A Look Around

More than ever the retailer of farm chemicals and allied products should give thought to how he can better arrange his store to provide more self-service.

Certainly, every product and service offered by the retailer ought to be displayed and called to the prospect's attention. A sample bag of each type of fertilizer should be opened for the prospect to see and feel. Never place products on shelves or behind counters where they are out of reach. Many products lend themselves to prepackaging. Mark them plainly with the price and you will find them selling much better. How do your salesmen greet your prospects? Are they the what-do-you-need type or the how-is-my-product-doing type?



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5083—Magnetic Pulley

The Homer Manufacturing Co., Inc., manufacturer of the Homer Hercules permanent magnetic pulley, describes this product's applications and features in a new illustrated 8-page bulletin, PY-260. These pulleys automatically remove tramp iron from feeds, chemicals and other materials, and separate ferrous from non-ferrous materials, the bulletin states. The bulletin includes diagrams, performance data, specifications and a guide for selecting proper size. To secure the bulletin check No. 5083 on the coupon and drop it in the mail.

No. 5070—Bulk Transport

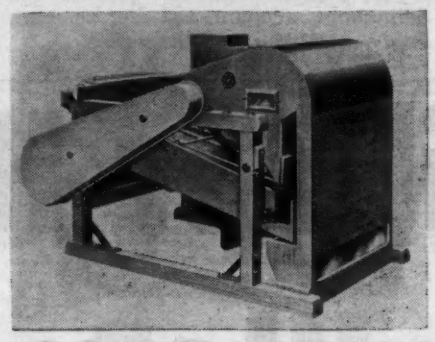
Now available is Baughman Manufacturing Company's bulk transport body, called by the trade name, Bulkmobile, which has a capacity of 780 cu. ft. Other models are available in lengths from 15 ft. to 33 ft., with body sides up to 36 in. high. Feeds, fertilizer and many other diverse materials can be transported, states the company. Discharge rates vary from ½ to two tons per minute, depending on the weight of the material. Four discharge attachments are available: 1. Screw conveyor; 2. belt and bucket elevator; 3. belt conveyor, and 4. distributor for spreading purposes. Among the body's features are full hydraulic operation for both body conveyor and discharge accessories, compartmented body for multiple deliveries, externally operated compartment doors and streamlined, all welded body with large heavy-gauge body hatches. To secure more complete details check No. 5070 on the coupon and drop it in the mail.

No. 5084—Level Indicator

A descriptive folder about a level indicator called Bin-Vue has been prepared by its manufacturer, Convair, and is available without charge. The folder contains construction diagrams, photographs, descriptions and price information about four models. The four are the standard, heavy duty, explosion proof and high temperature models. The indicator is suitable for powdered, granular, lumpy and wet materials and slurries, the folder states. To obtain the folder check No. 5084 on the coupon and drop it in the mail.

No. 5067—Grain and Seed Cleaner

Thomas Robinson & Son, Ltd., announces the production of a dual purpose cleaner, type PDm, offering high capacity at low power consumption. As a pre-cleaner the capacity is 15 tons an hour and five tons as a grain and seed cleaner. The manufacturer states that the machine is highly adaptable. It can be installed in any building, with one or several floors. Feed can be directly from a bin, through spouting, or by elevator while power can be from an in built motor, line shaft. To secure more details check No. 5067 on the coupon and drop it in the mail.



Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted here to help keep retail dealers on rotational circulation informed of new industry products, literature and services.

No. 6194—Catalog on Mixers

The Rapids Machinery Co. has recently released a two color descriptive brochure covering its line of fertilizer mixers and accessory equipment. Featured in the brochure are the firm's heavy duty industrial mixer and other types of mixers and a detailed illustration explaining the mixing and blending action of the Marion mixers. The balance of the brochure contains information and illustrations of the small batch mixer, elevator, finisher, and lists other available accessories for the fertilizer manufacturer. Copies are available on request. Check No. 6194 on the coupon and mail it to this newspaper to obtain the catalog.

No. 6197—Brochure

The Diamond Alkali Co. has prepared a 16-page brochure depicting the contributions made by the company's chemicals to agriculture and other industries. The booklet, called "15 Portraits in Print," contains 15 selected full-page, four color advertisements published by the company in recent issues of magazines. Interpreted in words and pictures are the diverse ways in which the company's chemicals are helping industries. Check No. 6197 on the coupon, send it to this publication and a copy of the brochure will be mailed without charge.

No. 6198—Fungicide Booklet

A new booklet describing the orchard fungicide, called Phygon-XL, for treating apple scab, blossom blight, brown rot and cherry leaf spot, has been published by Naugatuck Chemical, Division of U.S. Rubber Co. The booklet, titled No. 32, contains information about Phygon formulations, dust application on fruits such as apples, cherries, peaches, prunes and plums and spray applications on these same fruits. General information on handling the product, its composition and advantages are also included. Check No. 6198 on the coupon, clip and mail it to receive the booklet.

No. 6196—Bag Valve

A newly designed inner sleeve valve for multiwall paper fertilizer bags is being introduced by the Bemis Bro. Bag Co. The "Mr. Little" sleeve valve, named for its inventors, is distinguished by the patterned creases in the valve sleeve and the design of the sleeve itself. It functions in much the same manner as a check valve in a water pipe, which permits the water to flow freely in one direction but not in the other. A company report claims that "It practically eliminates leakage and gives maximum sifting protection." The valve's fast action on the packing spout keeps the product out of the valve pocket, which reduces the chance of moisture getting into the bag through the "wick" action of hygroscopic products, it is claimed. To secure more complete details check No. 6196 on the coupon and mail it.

No. 6195—Catalog

A complete catalog of equipment and supplies needed in the operation of anhydrous ammonia bulk stations and distribution points has been issued by the Pasley Manufacturing & Distributing Co. Nearly a hundred items are described and illustrated in detail in the 50-page booklet. The catalog also contains a handy NH_3 safety section which includes (1) properties, (2) vapor pressure facts, (3) safety precautions and (4) chemical properties of ammonia at various temperatures. For a copy of this catalog, please check No. 6195 on the coupon and drop it in the mail.

No. 6192—Weed Killer

A new service bulletin on the borate weed killer, called by the trade name, Tronabor, has been issued by American Potash & Chemical Corp. in connection with the product's use under asphaltic paving in such cases as airports, highways, parking areas, playgrounds and other similar applications. The new service bulletin augments information on Tronabor contained in a previously-issued bulletin describing its uses in oil fields, along railroad rights-of-way, along fence lines and other farm and industrial applications. The bulletin describes the product as a non-poisonous, non-corrosive borate weed killer that permanently sterilizes soil beneath a paved surface. Copies of either service bulletin can be obtained by checking No. 6192 on the coupon and dropping it in the mail.

No. 6189—Liquid Fertilizer Wagons

Prior Products, Inc., has prepared a brochure on its Ranger line of liquid fertilizer farm wagons. The brochure states that "through the use of the Linco level load axles it was possible to design these Ranger wagons with an extra low center of gravity . . . permitting easy access to operating valves and gauges . . . spring cushioning to eliminate shock and twist, important in preventing tank 'seam rupturing.'" There are three applications to choose from in the level load design and one application less the level load feature, but with spring loaded fifth wheel. Secure the brochure by checking No. 6189 on the coupon and mailing it to this newspaper.

Send me information on the items marked:

- ☐ No. 5045—Bulletin
- ☐ No. 5055—Fumigant
- ☐ No. 5067—Grain Cleaner
- ☐ No. 5070—Transports
- ☐ No. 5083—Pulley
- ☐ No. 5084—Indicator
- ☐ No. 6189—Wagons
- ☐ No. 6190—Folder
- ☐ No.6192—Weed Killer
- ☐ No. 6193—Conveyor
- ☐ No. 6194—Mixer Catalog
- ☐ No. 6195—Anhydrous Catalog
- ☐ No. 6196—Bag Valve
- ☐ No. 6197—Brochure
- ☐ No. 6198—Fungicide Booklet

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

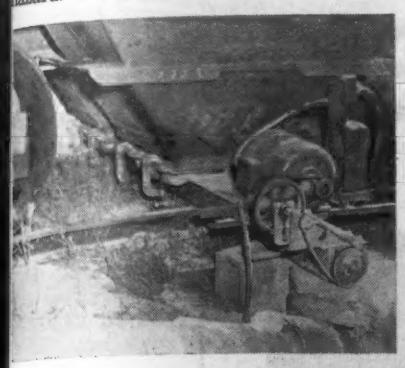
Croplife

P. O. Box 67,

Reader Service Dept. Minneapolis 1, Minn.

No. 6193—Conveyor

A new conveyor, the Over-Track Unloader, is being manufactured by the Midstate Machinery Co. It is being used to unload bulk fertilizer, feed and other materials being shipped in covered hopper cars. Company spokesman said one feature is that no hole has to be dug under the track, thus eliminating any water hazard. Also, this unloader makes



it possible for the operator to spot a car and unload it anywhere he chooses, it is claimed. The photo shows the unit emptying a covered hopper car of rock phosphate. The P51 Unloader is inserted between the railroad tracks and the hoppers of the railroad car and fastened to the car hoppers by means of flexible canvas connections. A dust-tight operation is claimed. The capacity of the P51 is 30 tons per hour of rock phosphate and other materials weighing 90 lb. per cubic foot. Complete information is available by checking No. 6193 on the coupon and mailing it to this newspaper.

No. 5055—Grain Fumigant

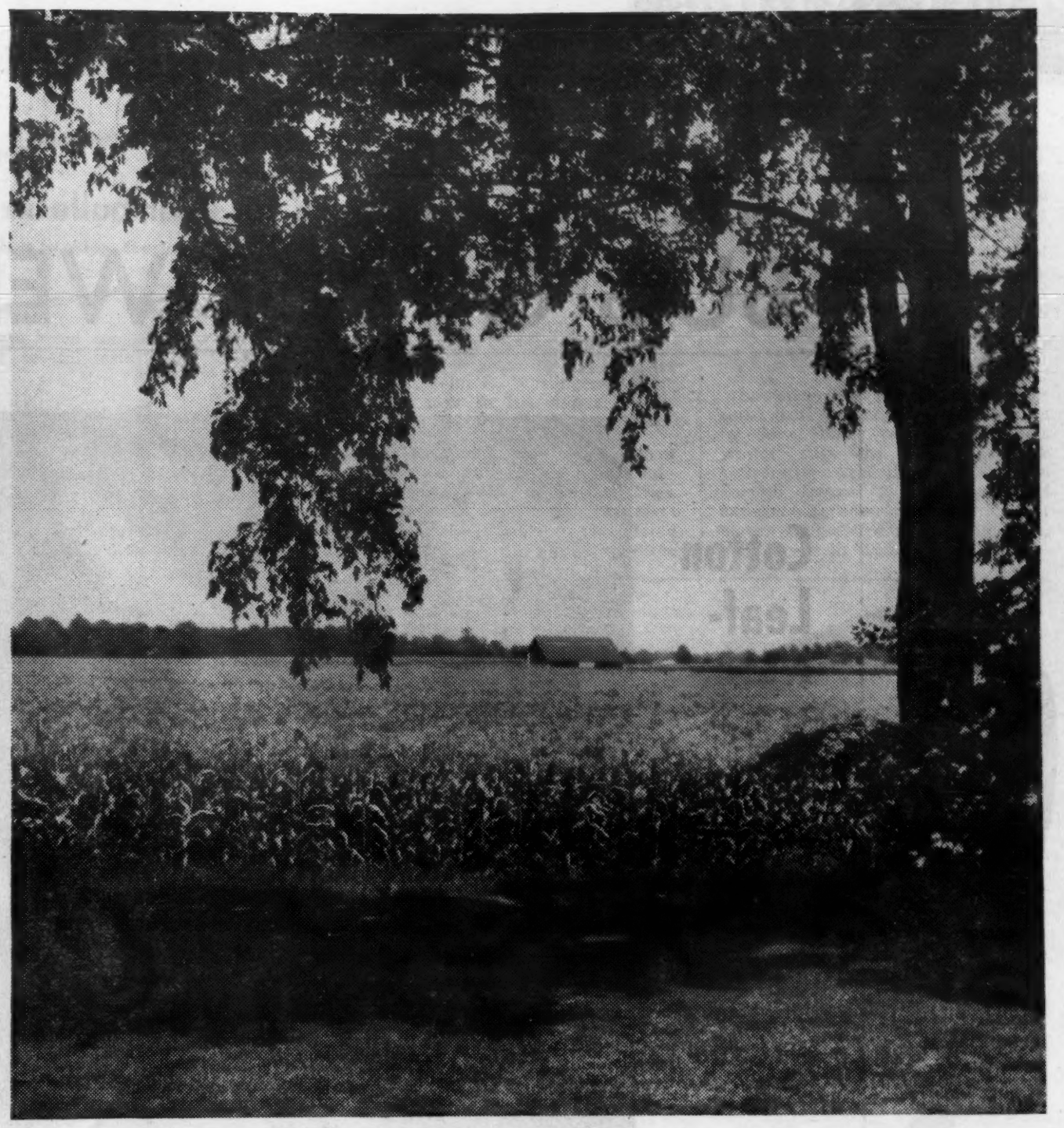
A folder describing its grain fumigant, Lethogas, has been prepared by the Parsons Chemical Works. Entitled "Facts and Data on Parsons Lethogas," the folder tells how the product works as a fumigant for grain weevil and certain other insects. The product forms a gas upon exposure to air, destroys by contact and gas fumes and is not a fire hazard, it is claimed. The product is sold in 5-gal., 30-gal. and 55-gal. drums for use in larger structures and in ½-gal., 1-gal. and 5-gal. cans for farm use. Facts about Kilane residual spray, an insecticide spray, are also included in the folder. Methods for the hand in hand use of Lethogas and Kilane to control weevils are outlined. To secure the folder check No. 5055 on the coupon and drop it in the mail.

No. 5045—Packaging Bulletin

The Triangle Package Machinery Co. announces the availability of a six page bulletin, "Profitable Solution to Your Package Filling Problems." The bulletin describes the firm's line of Elec-Trl-Pak net weighing and filling machines and lists the advantages of using a unit to do many of the packaging jobs now done by hand. Six models, from the automatic, one-scale model A1C to the three-scale model A3C are described in the bulletin. Copies of the bulletin may be obtained by checking No. 6045 on the coupon and mailing it to this publication.

No. 6190—Range Fertilizer Folder

Balfour, Guthrie & Co., Ltd., has issued a new folder titled, "A Report to California Ranchers—$16.99 Average Increase in Profit Per Acre," which is available without charge. Case histories of demonstrations on 13 California ranches in nine counties are included in the booklet. The folder states that range fertilization produced "four times more beef per acre, plus 6-8 weeks earlier range readiness." The company's Elephant Brand fertilizer was used in the demonstrations. Secure the folder by checking No. 6190 on the coupon and mailing it to this newspaper.



To make farming a better-paying business . . .

THREE YEARS before the Spaniards sank the battleship Maine in Havana harbor, the first V-C Fertilizers were supplied to American farms by a group of small manufacturers who had gotten together and formed a company based on a new idea in the production and distribution of commercial plant food.

For economy and convenience, V-C factories were to be located near the farms they served, and yet each factory was to benefit from the scientific research, skill, experience and facilities of a large organization.

In 1895, the V-C aim was to make farming a better-paying business, by supplying farmers with better fertilizers at reasonable prices through reliable, dependable dealers. V-C could prosper only if the farmers prospered.

Sixty years later, this simple aim still guides V-C policy. With its network of 34 fertilizer factories, its phosphate rock mines, its superphosphate producing units, its research laboratories and its staff of technical experts and agronomists, the V-C organization serves farmers from the Rocky Mountains to the Atlantic and from Canada to the Gulf of Mexico.

Today there is a V-C Fertilizer for every crop on every soil. Each V-C Fertilizer is a rich, mellow blend of better plant foods properly balanced to supply the needs of the crop for which it is recommended.

Through the years, V-C has constantly tested and developed new methods and new materials to bring more and more profit-making crop-producing power to the farms of increasing thousands of V-C customers. And the price of V-C Fertilizers has remained low compared to other things the farmer buys.

Yet, fertilizer is only part of the story of V-C's partnership with the farmer and the soil. V-C has constantly striven to develop new markets for farm products. V-C uses cotton cloth and kraft paper from farm pulpwood to make millions of bags each year. V-C uses nicotine extracted from tobacco in the manufacture of insecticides, the most famous of which is Black Leaf 40®. V-C research has created a new textile fiber from corn, known as *Vicara*®, now found in luxurious apparel for the whole family at fine stores everywhere. V-C uses other farm products in countless ways.

In the years ahead, Virginia-Carolina Chemical Corporation will continue to rally every resource to the job of making farming a better-paying business.

VC® FERTILIZERS

1895 1955 60th ANNIVERSARY

VIRGINIA-CAROLINA CHEMICAL CORPORATION • RICHMOND 8, VIRGINIA

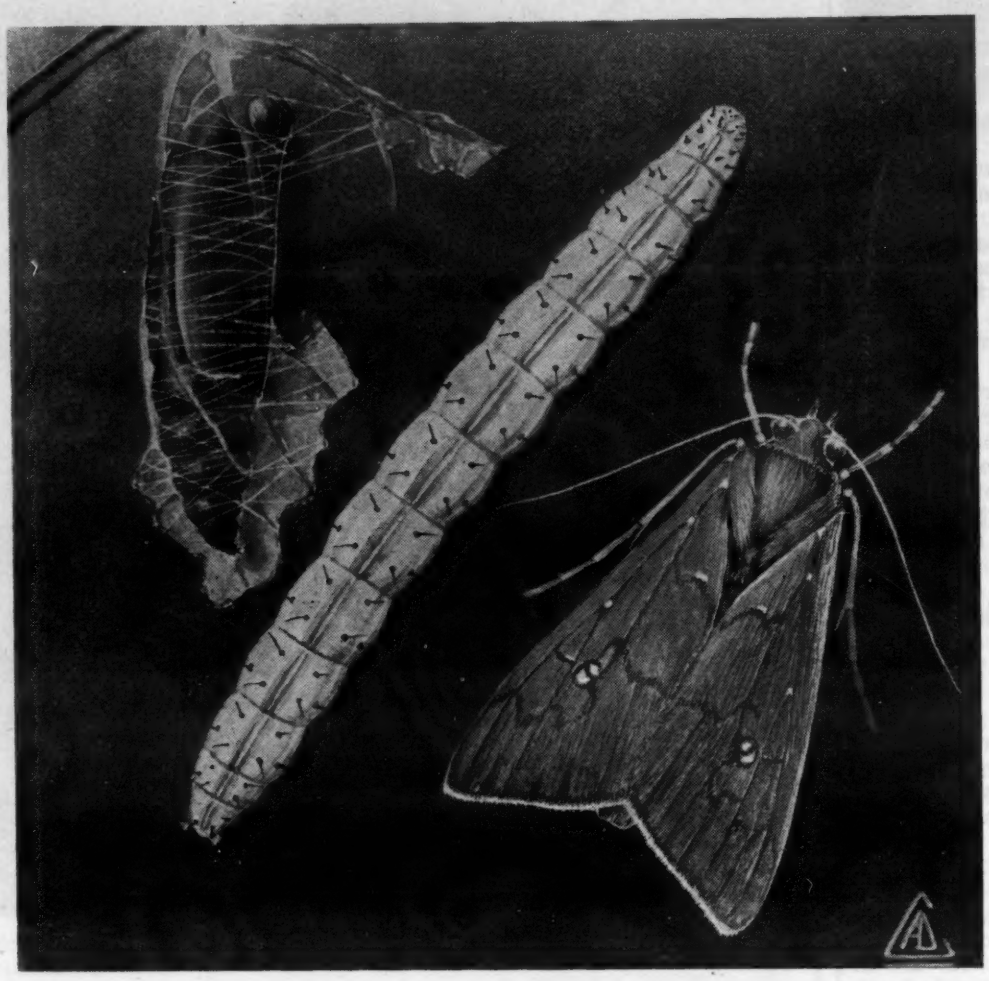
Albany, Ga. • Atlanta, Ga. • Baltimore, Md. • Birmingham, Ala. • Carteret, N.J. • Cincinnati, Ohio • Columbia, S.C. Dubuque, Iowa • East St. Louis, Ill. • Fort Wayne, Ind. • Greensboro, N.C. • Hopkinsville, Ky. • Jackson, Miss. • Memphis, Tenn. Montgomery, Ala. • Norfolk, Va. • Orlando, Fla. • Richmond, Va. • Savannah, Ga. • Shreveport, La. • Wilmington, N.C.

Better Selling
Richer Sales Fields for Dealers

Mr. Dealer--Cut out this page for your bulletin board

BUG OF THE WEEK

Cotton Leafworm



How to Identify

The cotton leafworm is a tropical pest. Although it cannot survive winter months in the U.S., new infestations are started each spring by moths that fly in from the south and lay their eggs on cotton. The full-grown worm is about 1½ inches long, greenish, with white and black stripes and with black spots over its body. Its half-looping crawl is characteristic.

Habits of Cotton Leafworm

The first leafworms usually appear in April, May or June, usually in southern Texas, but sometimes in Florida. As the leafworms increase in numbers, the moths fly to other areas and in some years invade all the cotton states except California. It is the larvae, or "worms," that feed on cotton. The small leafworms feed on the underside of the leaves and do not cut through the upper surface. Eggs are laid on the underside of the leaves. Worms hatching from these eggs become full grown in 2 or 3 weeks. The worms change into brown pupae in folds of the leaves. In about a week, the moths emerge and a new life cycle begins. The insect has 3 to 6 generations in one season. Wet weather is favorable to leafworm outbreaks.

Damage Done by Leafworms

Although smaller worms feed on the underside of the leaves and do not cut through the upper surface, larger worms eat the entire leaves. When abundant, they completely strip, or "rag" the leaves and then gnaw on the squares, bolls and bark until the field looks as if it had been burned off. Early ragging of plants prevents the bolls from maturing and reduces the yield and quality of the cotton.

Control of the Leafworm

A number of materials and combinations of pesticides have been found effective in control of the leafworm. These include toxaphene in either dust or spray form, at the rate of 1.5 to 2 lb. an acre of technical material; dusting with calcium arsenate or lead arsenate at 5-7 lb. an acre; 3% gamma BHC dust either alone or with 5% DDT; and a mixture of 20% toxaphene dust and 5% DDT. Naturally, large worms are more difficult to control and may cause considerable stripping before they are killed. USDA says that if a quick kill of large worms is needed to prevent stripping, add 7 or 8 lb. paris green to each 160 lb. calcium arsenate or use 8-10 lb. paris green plus 100 lb. lime.

Drawing of cotton leafworm furnished Croplife through courtesy of Hercules Powder Co., Wilmington, Del.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

FARM SERVICE DATA
Extension Station Reports

A high ratio of Virginia farmers still talking grass, in spite of the heartening drouths of the past o years, according to the Virginia lytechnic Institute. This is pointed in the reports from counties here seeding, fertilization and manement of pastures were big news 1954.

Especially notable achievements ave been in those counties which articipated in the pasture contest onducted by the VPI Agricultural Extension Service and sponsored y the National Fertilizer Assn.

The Association donated five silver ophies, one to the county conduct- g the best pasture program in each dministrative district of the Exten- on Service. Receiving the trophies ere Charlotte, Gloucester, Mecklen- rg, Prince William and Roanoke.

The top counties had several com- on denominators. The pasture pro- am was generally steered by a unty committee. Education of rmers, through farm meetings, ffice calls, distribution of leaflets and lletins, tours, meetings, press and dio, received strong emphasis. erving on the county committees, in ddition to farmers, were representa- ves of civic groups and business.

John F. Shoulders, associate agron- mist at VPI, computes that over ,000 farmers were contacted with formation on grassland farming, rough individual visits, tours and eetings in Virginia last year. Some ,000 acres of alfalfa were seeded, nd 150,000 acres of pasture were enovated or seeded.

Mr. Shoulders also reports that er 21,000 soil samples were made n pasture land. Plans are being ade for a similar program in 1955. roper management, aimed at a 12- onth feed program, will receive p emphasis, Mr. Shoulders said.

★

Malathion can be used safely on gs to control fleas, research work- s of the Texas A. & M. College ystem have found. In preliminary sts, reported by Manning A. Price, rofessor of entomology, several dogs ere dusted and sprayed with differ- nt malathion concentrations. Two ays after treatment no fleas were und on the once-infested animals. rof. Price says a five-tenths percent pray or four percent dust of mala- ion will give the longest control. 2.5% spray or 4% dust will eradi- te the pests in garages and other nfested areas.

★

Certain carbamate spray materials ave shown promise for thinning eaches in tests at Virginia Poly- echnic Institute Agricultural Experi- ent Station. Horticulturists there ay the tests indicate that a satis- actory spray may now be developed hich will reduce the cost and im- rove the effectiveness of the peach- inning job.

The horticulturists also report hat the use of ground sprays to ontrol pine mice seems to be one f the most promising develop- ments in the field of apple produc- ion.

A spray of endrin applied to the round in an apple orchard at the te of about 2½ pounds per acre has given complete control of mice in several tests.

★

Now that 1954, with its short pastures and dry weather is gone, it is a good time to remember some of the mistakes made and profit by them in 1955, W. R. Thompson, Mississippi extension pasture specialist, advises farmers. He says: "Start right now planning your pastures so that you will have grass every day the weather will let you. Take some soil samples and send them to the state soils testing laboratory at Mississippi Sttae College for fertilizer recommendations. You still have time to top dress clovers and legumes and mixtures of these two with phosphate and potash."

★

In addition to planting hybrid varieties, Logan County, Ky., farmers boosted corn yields by applying fertilizers, John R. Watlington, county agent, says in his annual report. About 99% of the crop was hybrid.

Many Logan county farmers had their soils tested in the county laboratory, Mr. Watlington said. Then they used fertilizers as the tests showed they were needed. Some applied 1,000 lb. complete fertilizer an acre and some side-dressed their corn with nitrogen fertilizer.

To avoid cornborer damage, some 100 Logan County farmers sprayed about 2,000 acres. Damage was not as severe as in 1953. Likewise, damage from the corn maggot was not as heavy as in the previous season. Farmers told Mr. Watlington they got good results from spraying corn land to control soil insects.

★

Louisiana cane growers can reduce sugar cane borer damage next season by doing borer control work this winter, says the Louisiana State University Agricultural Extension Service. Denver T. Loupe, assistant extension agronomist, points out that borers did heavy damage in 1954 and may repeat in 1955.

Formulators

You can't buy better DDT than PESTMASTER* brand

NOW, DIRECT FROM US, PESTMASTER*DDT Technical for your dusts, wettable powders, solutions, and emulsions. This leading brand of 100% DDT is hard, clean, stable. Its use will add kill, stability and uniformity to your formulations. Phone, write or fill in the coupon below for prices, conditions and samples.

Users or exporters of 75% DDT Wettable powder should investigate our PESTMASTER* Brand. Review its resistance to tropical conditions, its uniform wettable and suspension properties, its carefully controlled packaging which preserves its qualities. Remember, PESTMASTER* 75% DDT Wettable does the job when it gets on the job — Asia, Africa, South America, Europe, here at home—wherever you want it. Write for prices, conditions, samples. Use the coupon.

Send a sample of PESTMASTER* DDT Technical Grade (100%) ☐ Prices ☐
Send a sample of PESTMASTER* 75% Wettable ☐ Prices ☐

Name.....

Company or Government Agency.....

City.....State.....Country.....

MC** ©

MICHIGAN CHEMICAL CORPORATION
501 N. Bankson Street, Saint Louis, Michigan
EASTERN SALES OFFICE
230 Park Avenue
New York 17, New York

*REG. U.S. PAT. OFF. **T.M.

D-55-1

QUALITY PRODUCER OF PESTMASTER* DDT & METHYL BROMIDE AND OTHER AGRICULTURAL CHEMICALS

Test Your FERTILIZER I. Q.

By DR. MALCOLM H. McVICKAR
Chief Agronomist, National Fertilizer Assn.

Q. Are chemical fertilizers composed of pure nitrogen, phosphorus and potassium?

A. No. Pure nitrogen is an inert gas. Both phosphorus and potassium in the pure forms burst into flames when exposed to air and water. Therefore, all three of these primary plant-food elements must be tied up with other compounds to make them stable and usable as fertilizer. The fertilizer industry "fixes" nitrogen from the air and combines it with other elements to make stable nitrogen fertilizer. Man has at his disposal, large deposits of mineral ores containing phosphorus and potassium. These are refined and processed by the fertilizer industry to make fertilizers containing phosphoric acid and potash.

Vegetable Group Proposed In Mississippi County

SARDIS, MISS.—Plans for utilizing acreage made idle by the large cut in cotton planting are under way in Panola County, with business and farm leaders proposing a vegetable producers' association.

Under the plan, a $25,000 stock issue would be underwritten to launch the progarm.

Preliminary details of the proposal were announced at a meeting of the Sardis Rotary Club by Lee H. Thompson, Panola County agent.

The program will be aimed at providing new sources of income for farmers and to provide work for farm laborers made idle by the loss in cotton acreage. Preliminary plans call for a countywide program, with the employment of a consultant to advise farmers in planting and vegetable grading and to provide stable markets for the produce.

FARM INCOME DOWN

JACKSON, MISS. — Mississippi's income from principal farm crops declined an estimated $100,000,000 during 1954, with cotton bearing the brunt of the sharp decrease.

Income for the year totaled $425,000,000, the lowest in five years. The cotton crop, which produced about 74% of the income, brought $314,000,000, compared with $407,000,000 during 1953. The state produced 1,575,000 bales of cotton, compared with 2,129,000 in 1953.

Available Soon!

Reprints of Croplife's Feature

Bug of the Week

Twenty-four of the insects described in Croplife's weekly feature, "Bug of the Week" are being reprinted into an attractive 8½ x 11 inch booklet for distribution to the trade. Single copies 25c; quantity rates on request. Firms may have their names imprinted on the back cover at a moderate extra charge.

Included in the booklet are the following insects:

Alfalfa Weevil
Armyworm
Boll Weevil
Chinch Bug
Cotton Bollworm
Cutworm
Grasshopper
Imported Fire Ant
Lawn Chinch Bug
Lygus Bug
Meadow Spittlebug
Mosquito
Northern Corn Rootworm
Onion Thrip
Plum Curculio
Potato Leafhopper
Seed Corn Maggot
Sweetclover Weevil
Tarnished Plant Bug
Tobacco Hornworm
Tomato Hornworm
Tuber Flea Beetle
White Grub
Wireworm

Order From Reprint Department

Croplife

P.O. Box 67
Minneapolis 1, Minnesota

RINGING THE cash register

Merchandising Hints for The Retailer

Check on Operation

In order to see how and where operating procedure can be improved, altered or corrected, Dun & Bradstreet Inc., suggests that the retailer try this check list to see if he can answer "yes" or "no." Am I turning over my merchandise more times than last year? Is my turn over keeping pace with others in similar enterprises? Am I getting sufficient mark-up in merchandise to achieve a profit? Do I know how to mark-up merchandise to obtain the desired profit ratio? Do I know how to tell when my collections are getting out of line? Have I established a clear-cut collection policy to keep my working capital from becoming tied up in slow receivables? Do I know typical ratios for expense items like rent, light, heat and salaries to net sales? Do I operate on a prepared budget of expenses? A "no" answer should indicate to the retailer that he take action to correct that particular phase of his operation.

Profit Leak

One of the most startling discoveries made under test conditions is that three out of four food store checkers make mistakes in favor of customers. Of 404 checkers who participated in checking tests, 331 (82%) made errors. Surprisingly, 72% of these errors were in the customer's favor.

Use Tax Advantages

The new tax provisions will affect all farm dealers. For example, many will be affected by the new laws's revised faster rates for depreciation to new equipment. The new law allows a corporation to accumulate up to $60,000 of earnings for modernization (total for all years) without being exposed to penalty. Then, if there is an unreasonable accumulation, the penalty will apply only to that part which is excessive. Furthermore, it is up to the Internal Revenue Service to prove that the amount is excessive. Corporations, it is reminded, must file returns by March 15. The extra month applies to individuals. There are scores of technical changes and dealers should be careful not to be out of pocket, either by overpayment or because of an oversight.

Advance Notice

Sales training programs should always be preceded by advance ballyhoo. Do not spring such a program "cold" on your sales personnel because it may encounter immediate resistance. Build up advance enthusiasm by issuing fliers, bulletins, special mention at meetings, etc. Key personnel can also act as drumbeaters for the program. A sales training program, like anything else, must be "sold" so that personnel will be mentally ready for it.

For Old And Young

An open house or special sales promotion can be given extra punch when dealers announce that prizes will be given to the oldest and youngest visitors. Added attention is gained for any promotional event and additional people are attracted.

Appeal to The Eye

By far the most important consideration when setting up displays, rearranging or remodeling the store or showing merchandise is to make them appealing to the eye, dealers attending a recent General Mills, Inc., conference **were told. Psychologists say that the power to attract attention and stop customers is accomplished 86% through the sense of seeing. Next in importance are hearing 7%, smelling 4%, touch 2% and taste 1%. Food dealers, it should be noted, can take excellent advantage of eye appeal and add other appeals where possible when preparing displays and counters. Always ask yourself "How can I make this display more appealing to the prospect's eyes?"**

Try Classifieds

Classified advertising in newspapers has shown a general increase within the last few years because its high readership usually produces a good response for comparatively little cost. Dealers will find the classified columns in their area newspapers valuable for advertising farm supplies, special services and offers, etc. Classified advertising won't substitute for display advertising, radio, direct mail, signs, etc., but is a valuable support for those forms of advertising.

South Carolina Notes Centennial Of Entomology

COLUMBIA, S.C.—South Carolina entomologists representing all branches of the profession met in a luncheon meeting at the Jefferson Hotel in Columbia recently. The meeting, in addition to serving as a social get-together for the approximately 50 entomologists present, included a program centered around the centennial of professional entomology theme.

Dr. M. D. Farrar, dean of agriculture of Clemson Agricultural College and an entomologist by profession, keynoted the meeting with an address entitled, "Professional Entomology, Past, Present and Future."

Entomologists from the main experiment station at Clemson and from three branch stations—the Pee Dee Station at Florence; the Truck Station at Charleston and the Edisto Station at Blackville—reported briefly on historical aspects of investigations of early insect problems and personnel involved.

Representatives of the South Carolina Extension Service and the State Crop Pest Commission outlined early work. The U.S. and Public Health agencies also presented historical summaries of early work with insects affecting human welfare. Attention during the program was also given to reports on some of the more recent developments in entomological work such as aerial dusting and industrial entomology.

The program brought out the fact that South Carolina figured in some of the earliest investigations of injurious insects carried on by the U.S. Department of Agriculture. Partly as a result of this early work in South Carolina the monumental fourth report of the U.S. Entomological Commission, concerned largely with cotton insects, was published in 1885.

Perusal of old records also emphasized the fact that the state of South Carolina recognized at a very early date the importance of controlling the depredations of insect pests. Five years before the passage of the Hatch Act of 1887, which made state experiment stations possible, the legislature of the state financed serious investigation of agricultural problems. Prominent among these was the control of injurious insects.

The first report of this work published in 1888 was a voluminous work of nearly 400 pages, an important part of which had to do with insect pests. The entomologist who prepared this material was George F. Atkinson, South Carolina's first professional entomologist. Mr. Atkinson came to the state as one of the first men trained in the profession by the then young Prof. John H. Comstock of Cornell University. Mr. Atkinson later transferred his interests to the field of botany where he attained wide prominence.

Clemson Agricultural and Mechanical College, the official agricultural and mechanical college of the state, was not incorporated until 1889.

One of the earliest teachers of entomology in South Carolina, it was revealed, was the late Dr. A. P. Anderson, famous as the discoverer of puffed cereal breakfast foods, who made the discovery about 1898 while at Clemson.

Steps were taken by the entomologists at the meeting toward organization of a South Carolina Entomological Society.

This meeting and luncheon brought to a close the Centennial of Professional Entomology activities in South Carolina. Through the year a variety

Chemical That Limits Second Growth Described at Defoliation Conference

MEMPHIS—A defoliant that has shown promise in limiting second growth was described at the annual Beltwide Cotton Defoliation Conference held here recently. The conference is sponsored by the National Cotton Council.

The chemical, amino triazole, when added to already-established brands of defoliants, may limit second growth for three to six weeks it was reported.

Amino triazole was tested on a small scale in 1953, and on a large scale in 1954, at experiment stations across the Cotton Belt. Except for California, where it seems to take too much of the chemical to produce desired results, the material looks very promising, it was stated at the conference. It will be commercially available to cotton growers prior to the 1955 harvesting season.

Other subjects dealt with by the conference included reports on studies of field tests in Alabama, Mississippi, Texas and Oklahoma.

Dr. F. C. Bishop, coordinator of the Cooperative Pink Bollworm Research Project, Brownsville, Texas, outlined the need for more effective defoliants in control of the pink bollworm, cotton's current worst insect threat.

Dr. J. T. Presley, pathologist, USDA, Beltsville, Md., listed the factors of defoliation influencing boll rot. General conference chairman was W. Hardy Tharp, USDA, Beltsville, Md.

On the panel concerned with basic and applied studies with amino triazole and other growth inhibitors were W. Balk, agricultural engineer, Edisto Experiment Station, Blackville, S.C; R. O. Thomas, physiologist, Arkansas Agricultural Experiment Station; W. C. Hall, physiologist, Texas Agricultural Experiment Station, and L. C. Brown, physiologist, U.S. Cotton Field Station, Sacaton, Arizona.

Other sessions took up the effects of defoliation on machine harvesting of cotton, fiber quality of defoliated cotton, and the relationship of ginning to defoliated and non-defoliated machine-picked cotton.

Grant Made for Study Of Insecticide Resistance

BERKELEY, CAL.—The Rockefeller Foundation has pledged $15,000 to be used on the Riverside Campus of the University of California to continue investigations into the ability of insects to develop resistance to insecticides.

The project, started in 1952 on a similar Rockefeller grant, has become increasingly vital to public health programs as well as agricultural production, according to Dr. A. M. Boyce, director of the University's Citrus Experiment Station at Riverside.

It is apparent, Dr. Boyce believes, that the continued success of the insect control programs is dependent upon better understanding of the genetic, physiological and biochemical factors which cause insect resistance.

HAMMOND
Multi-Wall
PAPER
BAGS
HAMMOND BAG & PAPER CO.
General Offices: Wellsburg, W. Va.
Plants in Wellsburg, W. Va.
Pine Bluff, Ark. - Charlotte, N. C.

Now Available!
AMNICAL
(AMMONIUM NITRATE LIMESTONE)
20.5% Nitrogen
Double Duty Plant Food
Made in Italy

AMNICAL contains 20.5% nitrogen which will result in higher-than-ever yields of protein rich crops of all kinds.
AMNICAL contains about 40% Calcium Carbonate with Magnesium Carbonate.
AMNICAL'S nitrogen is in approximately one-half nitrate form making it quick-acting and immediately available to growing crops.
AMNICAL'S nitrogen is in approximately one-half ammonia form—resistant to leaching, slow but steady-acting, gradually feeding the crop throughout the entire growing season.
AMNICAL'S white color is your guarantee of the purity of the raw materials employed in its production.

Amnical is manufactured in a solid white pellet form to assure easy handling, free flowing, and resistance to moisture.

Stock Up On AMNICAL Today
Exclusive Distributors
ASHCRAFT-WILKINSON CO.
Atlanta, Ga.
NORFOLK, VA. • CHARLESTON, S.C. • TAMPA, FLA. • JACKSON, MISS. • COLUMBUS, OHIO

WORLD REPORT

Industry News from Everywhere

By GEORGE E. SWARBRECK
Croplife Foreign Office Manager

An indigenous source of sulfur has been found by the Geological Survey of India. Pyrite deposits with a sulfur content of 43% have been discovered in two areas of the Shababad district of Bihar.

India's current requirement of sulfur, set at 100,000 tons, has to be imported. This amount is equivalent to about 137,000 tons of the Shababad deposits of pyrite. The sulfur content, according to an analysis undertaken by the survey group, varies between 40 and 46%.

The plan to explore local sources of sulfur was sparked in 1950 when imports fell short of needs due to the greater consumption by producing countries and the general world scarcity. The Indian government furnished the funds for the exploratory work.

The pyrite deposits occur at the base of the vertical scraps of the Upper Kaimur sandstones.

Venezuela

The government of Venezuela is providing upwards of $6.5 million to develop a home chemical industry. Listed for future production are nitrogenous fertilizers, ammonia, sulfuric acid, nitric acid, fungicides and insecticides.

Venezuela has not developed fertilizer usage as extensively as many other Latin American countries. Most of the requirement is imported in the form of mixed fertilizers, though in the last five years there have been developments aimed at providing local mixing facilities.

German Expansion

The potash industry of western Germany hopes to hike its export totals to 50% of total production in 1955, as opposed to 43% achieved last year.

Trade sources report that total sales last year were 1.6 million tons, or 14% greater than those made in 1953. Exports were 21% higher.

Adjacent European countries represent the main markets, though shipments to Japan and the Far East generally showed gains. Sales to African territories also showed an improvement. The country has 13 mines and already plans are being made for an increase in production to meet the growing world demand.

In the agricultural chemical field Germany is making great strides. Of importance is the decision by the allied high commission to hand to the federal government the control of the deconcentration of the mammoth I. G. Farben chemical empire. The assets have already been divided between Farbenfabriken Bayer, Leverkusen, Farbwerke Hoechst, Frankfurt and Badische Anilin und Soda Fabrik, Ludwigshafen.

The way is clear for the Germans to reform their cartelization system if they so desire, but observers do not believe that the policy of combination will be restored.

Canadian Chemical Production Gains

WINNIPEG — Canadian manufacturers produced $796,562,234 worth of chemicals and allied products in 1952, an increase of more than 2% over the 1951 output value of $776,489,391 according to an annual review compiled by the Dominion Bureau of Statistics, released Jan. 14.

The 14 industries in the group had 1,075 plants in 1952 and employed 47,694. The 538 factories in Ontario accounted for 59% of the production and 49% of the employees and the 346 establishments in Quebec 29% of the output and 41% of the workers. The other 191 plants were spread across eight provinces.

Gross production value increased in 1952, over 1951, in all but five of the industries. Fertilizers reached to $78,743,491 from $74,488,720 and miscellaneous cehmical products to $143,546,514 from $131,543,294.

O. W. Kromer Names New Distributors

MINNEAPOLIS — O. W. Kromer Co. of Minneapolis, manufacturer of power sprayers and fertilizer applicators, has appointed three new distributors of Kromer equipment.

They are Seitz Distributing Co., 503 North 25th St., Billings, Mont.; Smalley Manufacturing Co., 509 York St., Manitowoc, Wis.; and Eastern Machinery Co., 2700 Erie Blvd. E., Syracuse, N.Y.

USI PLANT

(Continued from page 6)

composed of nitrate and ammonia in water. Nitrogen solutions may be used either by manufacturers of complete fertilizers or for direct application.

This process of making Ammonia also produces large quantities of oxygen, which has several captive uses at the USI and Petro plants. USI officials say their ammonia plant has an important advantage over most other ammonia plants in this country, which produce hydrogen by the decomposition of natural gas. The use of by-product hydrogen from the Petro plant results in savings of both capital investment and production costs, they point out.

The USI plant goes onstream in time for heavy springtime demand for fertilizer nitrogen. According to USI officials, the Tuscola ammonia plant is the first of its kind in Illinois. Its output will be consumed in Illinois, Indiana, Ohio, Michigan, Wisconsin, Minnesota, Iowa and Missouri.

NFA Irrigation Movie Ready For Distribution

WASHINGTON — "Weather or Not," a new educational motion picture which portrays how farm profits can be boosted by the fertilizer-irrigation team, is now available for distribution, the National Fertilizer Assn. announced here Jan. 17.

The new 16 mm. sound-color movie which runs 21.5 minutes, is the second educational picture produced by NFA during 1954. The other, "The Big Test," which describes the approved method of taking soil samples to be used in determining plant food deficiencies in the soil, was released in December. Both pictures were produced by NFA's Robert H. Engle.

Cooperating in the production of "Weather or Not" was the Sprinkler Irrigation Assn. The advisory committee on the film included representatives of the American Society for Horticultural Science, the American Society of Agricultural Engineers and the American Society of Agronomy.

Professional actors tell the story of "Weather or Not," which is designed principally for use in the humid regions of the U.S. east of the Rocky Mountains. A farmer and his son, both dairymen, who operate adjoining farms, compete with each other to see which can produce the most profitable pasture. The father installs a sprinkler irrigation system and fertilizes heavily. The son employs routine pasture management practices.

Each keeps complete records, and at year's end they compare cost and profit figures. As the story unfolds, it introduces the various requirements for profitable operation of an irrigation system.

Another recent NFA movie, "Cash in on Corn," has proved popular since its release two years ago, and bookings now are being scheduled for the spring season. Persons or groups wishing to schedule a showing of this film in the next few months are urged to send their requests to NFA in the near future.

The film describes the steps farmers must follow to get top corn yields and profits. The story is based on recommendations of an advisory committee which included field crop specialists of various state agricultural colleges and the U.S. Department of Agriculture.

As with other educational movies produced by NFA, "Weather or Not" is expected to be used widely in school and college classrooms, and by county agents, fertilizer and irrigation equipment dealers and other agricultural workers in meetings of farmers.

All NFA movies may be borrowed free of charge by sending a request to the association at 616 Investment Bldg., Washington 5, D.C. Persons or groups wishing a permanent copy of "Weather or Not" may arrange to purchase one through NFA at the actual printing cost of $80.

Personnel Managers Named by Monsanto

ST. LOUIS — Personnel superintendents for Monsanto Chemical Co.'s Inorganic Chemicals Division plants at Kearny, N.J., and Trenton, Mich., were named in a recent announcement by Herbert F. Weaver, division production manager.

William I. Tierney, who has been in a similar position at Anniston, Ala., will go to the Trenton plant, and T. D. Tucker, who has been at Trenton, will assume the personnel duties for the new plant now under construction at Kearny. Both changes are effective immediately.

CONVEYORS By KAY

COMBINATION MODELS

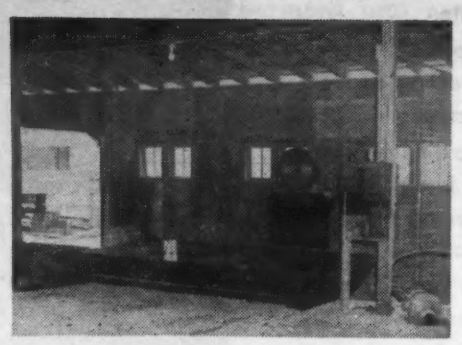
For loading, unloading or stacking bulk fertilizer and packaged goods. Portable or stationary. Write for literature.

Kay Enterprises Box 56, Janesville, Iowa

make it Midstate—

FOR COMPLETE EQUIPMENT TO MANUFACTURE—HANDLE—STORE LIQUID AND DRY FERTILIZER!

Whether you want an entire new plant, a storage tank, or replacement equipment our experience and ability will pay off for you. With our technical staff and complete services we can build you a "Turn-Key" job. Get our quotation before you build or purchase equipment.



Mixing hoppers in a bulk fertilizer plant built by Midstate

Dry Mixing

- Complete Plant
- Bucket Elevators
- Screw Conveyors
- Belt Conveyors
- Industrial Fertilizer Mixers
- Truck Loading Conveyors
- Truck Loading Scales
- Bolted Steel Storage Tanks
- Concrete Storage Tanks

Liquid Mixing

- Complete Plant
- Storage Tanks
  - —Steel
  - —Aluminum
  - —Rubber Lined
  - —Stainless Steel
- Pumps
  - —Stainless Steel
  - —Plain Iron
- Reactor Tanks
  - —Rubber Lined
  - —Stainless Steel
- Stainless Steel Pipe

Our Experience Assures You of Good Production and the Best Equipment
Write — Phone — Wire Today!

MIDSTATE MACHINERY CO.
359 EAST MAIN DECATUR, ILL. TELEPHONE 8-4363

IOWA MEETING

(Continued from page 3)

dium range. Biggest potash responses, he said, have come in the northeast Iowa area.

Dr. John Pesek reviewed briefly a few of the practices and problems in application. He emphasized that equipment for applying row fertilizer hasn't lost its value. It offers an efficient method for small amounts of fertilizer.

There have been good results, Dr. Pesek reported, from fall application and plow-down of nitrogen fertilizers in 1951, '52 and '53. There was not excessive rainfall during those periods. But Iowa researchers want more evidence before they make broad recommendations on fall-applied nitrogen.

Final session of the all-day short course program found more than 200 of the visitors still on hand. The four men who work closest with experiments on the experiment station's outlying experimental farms and with experiments conducted on farmers' fields reported some of their results.

Lloyd Dumenil reported principally on carryover effects. In one outstanding example, rates of 60, 120 and 180 lb. actual nitrogen were applied on corn in 1952. The 1953 yield boosts on corn and the 1954 yield boosts on oats—with no further nitrogen added were:

	1953 Corn	1954 Oats
60 pounds N	0	3
120 pounds N	40	10
180 pounds N	51	20

Ray Nicholson, who works in southern Iowa where two consecutive years of drouth have been recorded in 1953 and 1954, reported some of his findings. At one experimental farm, he said, the drouth of 1954, when the season opened with subsoil moisture depleted, curbed responses of any importance from fertilizers. However, over a 5-year average—including both drouth years—application of 100 lb. 0-20-20 as starter has given a 7-bu. increase on corn.

Another experimental farm in southern Iowa got a 3-inch rain in mid-July after severe drouth and hot winds earlier. One experiment gave these yields:

No nitrogen	34 bu.
40 pounds N	56 bu.
60 pounds N	71 bu.
120 pounds N	85 bu.

Agronomist H. R. Meldrum reported efficient responses from starter fertilizers in experiments in northeast Iowa this year; and Dr. John Pesek reviewed economics of fertilizer use on this final symposium program. "We recognize," he pointed out, "that farmers vary in their interest in fertilizers, their capital and their management ability to get returns. Iowa county extension directors have three sets of recommendations to guide farmers on their fertilizer rates, he explained. The rates recommended with the return of the soil test results are for a medium expected return on investment. Rates by soil type areas have been developed—based on field correlations—for rates that take the investor near the highest possible return per acre for fertilizer investment. Another set of rates has been developed that will help a fermer get the maximum return per dollar invested.

HORTICULTURIST NAMED

ST. PAUL — C. Gustav Hard of Wyanet, Ill., has been appointed extension horticulturist at the University of Minnesota. He will fill the vacancy created by the resignation of Richard J. Stadtherr, who has accepted a position as research fellow in the University's Department of Horticulture.

H. Clay Hansen Appointed to Olin Mathieson Post

LITTLE ROCK—H. Clay Hansen has been appointed agricultural specialist in the Arkansas Fertilizer District for Olin Mathieson Chemical Corp., R. M. Morehead, district sales manager, has announced. His headquarters will be at the Olin Mathieson plant in North Little Rock.

Mr. Hansen was market analyst in the Western Fertilizer Division of the corporation at Little Rock for the past year and one half. Earlier he was for 12 years active in farm credit work in Arkansas and for several years was a district supervisor for the Farmers Home Administration in Northwest Arkansas.

The new assignment will be largely in Arkansas. He will work with the various agricultural agencies in the state and with Arkansas banks to assist them in their agricultural programs.

Mr. Hansen is a graduate of the College of Agriculture, University of Arkansas. He is vice president of the Arkansas Agriculturists Assn. and a member of the agricultural research panel of the Arkansas Economic Council, State Chamber of Commerce.

Du Pont Stockholders

WILMINGTON—E. I. du Pont de Nemours & Co., Inc., was owned by 149,414 stockholders as of Dec. 31, 1954, an increase of 454 over the number of holders recorded at the close of the third quarter of 1954, and an increase of 3,402, or 2.33%, over the number as of Dec. 31, 1953. There were 133,997 holders of common stock and 21,984 holders of preferred stock as 1954 ended. These figures include 6.567 holders of more than one kind of stock.

Fee to Finance Bollworm Control Studied in Arkansas

LITTLE ROCK — The Arkansas State Plant Board is studying a proposed set of regulations calling for a fee on each cotton gin in the state to finance pink bollworm control work in the state. Each ginner would be charged 7¢ for each bale of cotton which he ginned, in addition.

Transportation, distribution or sale of cottonseed, gin trash or other cotton products would be prohibited if the ginner failed to comply.

On an estimated basis of 1,000,000 bales of cotton yearly and 100 gins in the state, the plan could net as much as $73,500 yearly.

The board is at present conducting its pink bollworm inspection program with $20,000 granted from the governor's inspection fund.

Pittsburgh

is your Basic Source of

Quality-Controlled BRUSH KILLERS

If you want to give your brush killer sales a big boost this year, sell field-tested *Pittsburgh* Brush Killers. For this complete family of safer, low-volatile brush killers is made by a basic producer—*quality-controlled* from coal to packaged product. That's your assurance of product quality that builds good will, repeat orders and increased profits. And attractive packaging, plus a complete advertising program, back you every step of the way.

There's a *Pittsburgh* Brush Killer for every brush control job, from tough range land clearance to ordinary fence row brush removal.

Why not enjoy the increased sales and profits these *Pittsburgh* benefits offer you. Write today for further details on Pittsburgh's complete family of low-volatile, field-tested brush killers!

Standard for Quality

For immediate information about Pittsburgh Agricultural Chemicals, write or call your nearest Pittsburgh Coke & Chemical office at:

Atlanta • Los Angeles • Chicago • Dallas
Memphis • Minneapolis • New York • San Francisco
St. Louis • Walla Walla • Omaha • Denver

AGRICULTURAL CHEMICALS DIVISION
PITTSBURGH COKE & CHEMICAL CO.
Grant Building • Pittsburgh 19, Pa.

WGD 8484

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON

CALIFORNIA SPRAYERS

(Continued from page 1)

treasurer, and Mrs. Wanda Branstetter who is associated with her husband in the Sacramento service, was renamed executive secretary. Robert Bunch of Bear Mountain Dusters, Arvin, was named a director.

The business sessions brought some of the nation's top speakers on agricultural aircraft problems. It was reported to be the largest meeting of its kind held in the United States during the past year.

Assemblyman Lloyd Lowrey of Rumsey, warned the group to proceed cautiously in asking for legislation. Another assemblyman, Gordon Fleury of Sacramento, described legislative procedures for the group.

Fred E. Weick, director, Personal Aircraft Research Center, Texas A&M College, drew one of the largest audiences of the convention with his remarks on "Development of Agricultural Aircraft."

"The outlook for special aircraft for agricultural use is good," he said. He told of development work being done by Piper Aircraft and briefly mentioned the DeHavilland Beavers as well as the development of new wing types for the Stearman.

Mr. Weick also described the evolution of the AG1 and AG2 and said that the new AG3, having the same over-all configuration of its predecessors, holds promise of even greater utility. It has an 800-lb. spray or dust load and can take off and climb to 50 ft. altitude in 920 ft. of runway.

Other new types of interest to dusters, he said, are the Fletcher Utility, the Air Tractor, Snow low wing monoplane and the stagger wing Cub.

In discussing corrosion, Mr. Weick said that the only two materials for aircraft dusting use which are not subject to corrosion are stainless steel and polyestron plastic. The most satisfactory finish for aluminum alloys, he said, was an undercoat of 3-M Koroguard primer No. 9 topped by Puran finish.

"No finish is perfect," he added. "Even bare aluminum does fairly well if cleaned every day."

Mr. Weick also discussed spraying and dusting patterns and made recommendations for obtaining optimum results with greater savings in materials. Because of propellor influences and wing tip vortex it is necessary for the operator to test his patterns closely to obtain best results, he said.

Mr. Weick said that in high-wing aircrafts tests show that there is little need for placing nozzles beyond 12 ft. outboard since that position gives optimum coverage.

In his "Progress Report on Aerial Spray Equipment and Use of Aerial Sprays for Control of Miscellaneous Insects," Dr. J. C. Chamberlin, entomologist in charge of the U.S. Department of Agriculture station at Forest Grove, Ore., described tests on aerial spraying of pea weevils, corn ear worms and green pea chafers.

He said it was found that spray application for above was not suitable where leaves form a canopy to protect the pests. In such cases, he said, the spray mostly is deposited on the upper side of the leaves.

Dust applications are more effective, but Dr. Chamberlin held out the greatest hope for control in the development of granular insecticides which will penetrate the canopy cover down to ground level. There, he said, "tripper action" of some sort, possibly moisture, would release toxic gas. The leaf cover, he said, would serve to retard dissipation of the gas.

Dr. Chamberlin also discussed spray and dusting patterns, using slides, and recommended that 27% more nozzles should be installed right of center of the aircraft to compensate for the effect of the propellor slip stream.

"To avoid spray being pulled out by the wing tip vortex you must keep the nozzles pretty well inboard and this situation increases with the speed and power of the aircraft," he said.

One C-47 aircraft does more in one day than the old surface hydraulic sprayers were able to accomplish in 40 seasons in control of gypsy moth, Kenneth Messenger, U.S. Department of Agriculture, Beltsville, Md., told the convention.

He reviewed the historical development of agricultural aircraft with particular reference to destruction of barberry bushes which host stem rust, control of Mormon crickets and grasshoppers, pink boll worm and the Mexican fruit fly. The latter recently was found in Southern California.

With regard to insecticide-fertilizer mixtures, Mr. Messenger said that it is difficult for manufacturers to stock these in sufficient combinations to meet all needs. The point has been reached, he added, where it is necessary to apply insecticides and fertilizers separately or apply them with a double hopper.

Like Dr. Chamberlin, Mr. Messenger believes that granular insecticides have a greater future since they can kill insects in the ground and have residual effects. The problem, he said, is to apply them evenly from the air.

Mr. Messenger also described aerial dropping of screw worms treated with radio-active cobalt as a control of this pest in Curacao. The radioactivity, he said, results in cessation of the propagation of screw worms.

The convention concluded with demonstrations and exhibits of agricultural aircraft equipment at Sacramento Municipal Airport.

Farm Outlook Brightens in Texas, New Mexico

LUBBOCK, TEXAS—Recent snows and rains in Texas and New Mexico have raised farming hopes the highest since early autumn. Parched ranges and dry fields have now received enough moisture to benefit grass and winter grain pastures, and it has enabled thousands of farmers to plow their land before the spring winds begin. A little more moisture will assure farmers of an early planting.

One big worry is what to do with the large acreage not allotted to cotton. With cotton acreage cut down still further from 1954, most farmers want to try something other than grain sorghums which covered most of the diverted acreage last year.

In some areas vegetables and alfalfa will be increased, especially in irrigated sections. Livestock farming is also increasing, as more and more landowners try to utilize their irrigation wells the year around.

INSTITUTE PLANNED

BRIGHTON, COLO.—An expanded and enlarged agricultural institute is scheduled at Brighton, Colo., Feb. 1-3, featuring information for vegetable growers, farmers and dairymen. Emphasis will be placed on insect control, fertilizer, irrigation, crop rotation, cattle feeding and dairying. The Feb. 2 program will concern field crops, irrigation and conservation. Colorado A&M experts will speak on research, fertilizers, crop rotation and weed control.

Arkansas Obtains Funds to Help Distressed Farmers

LITTLE ROCK, ARK. — Gov. Francis Cherry has announced he has received clearance on more than two million dollars in federal funds which can be used within the next three years for drouth distress relief or crop loans to Arkansas farmers and rural areas.

The money is coming from two sources—$300,000 from the Federal Security Agency, including $200,000 on hand immediately, and an estimated two million from the Arkansas Rural Rehabilitation Corp., which was created in 1934.

The estimated two million has accumulated in the Rehabilitation Corp. and should be released entirely to Arkansas within the next three years, according to the agreement he has signed, Gov. Cherry said.

The money could be used as drouth relief or as loans to farmers, but it must be confined to meeting agricultural needs, he indicated. For the state's immediate use, however, the Federal Security Agency funds will be utilized.

The FSA funds will be used to help alleviate what the Governor indicated was a fairly widespread need for help this winter to farm families whose crops burned up last year. The Welfare Department will administer the funds as needed, the governor said.

Phelps Dodge Opens Chicago Warehouse

NEW YORK—Phelps Dodge Refining Corp., New York, has opened a warehouse in Chicago where stocks of all grades of Triangle Brand copper sulphate and nickel sulphate will be available for truck pickup. This will be Phelps Dodge's third shipping point, the other two being El Paso, Texas, and Laurel Hill, Long Island.

The address of the new warehouse is 5310 W. 66th St., Chicago 38. The Chicago sales office of the company has been moved from 230 N. Michigan Blvd. to the new warehouse.

CORN BORER

(Continued from page 1)

has been consolidated by USDA's Agricultural Research Service for release Jan. 28 in the Cooperative Economic Insect Report.

Nationally, the infestation ranges westward from the Atlantic ocean to eastern Montana, Wyoming and Colorado, and from the Canadian border southward to northern South Carolina, Georgia, Alabama, Mississippi, Arkansas and Oklahoma.

Three main facts that stand out in the national outlook report are:

1. For 13 North Central states, corn borer populations last fall averaged 223 for every 100 corn stalks. This compares with an average of 114 per 100 stalks that was found in a similar survey made during the fall of 1953.

2. Somewhat offsetting this heavy infestation is a sharp drop in corn borer numbers in 12 eastern states—from an average of 65 per 100 plants in 1953 to 33 last fall.

3. The insect was not reported from any new states (it is now known to occur in 37), but was reported from 18 counties not previously known to be infested.

Biggest problem areas are likely to occur in central Iowa, northeastern Nebraska, southeastern South Dakota and central Illinois. Sharp increases were recorded in smaller areas of Iowa, Missouri, Nebraska, Ohio and South Dakota.

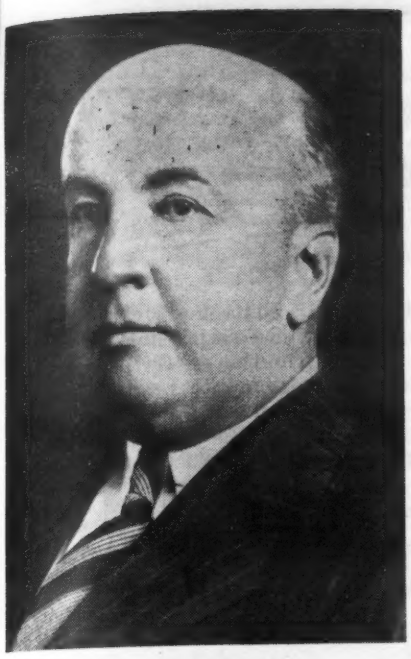
Iowa averaged 497 borers per 100 corn plants; in one county — Palo Alto — the average was 767. Nebraska's state average was 350; South Dakota's, 399. Yankton County, South Dakota, averaged 1,126 borers per 100 plants, by far the highest total of any surveyed county.

Counties reported as newly infested are Boone and Lee, in Arkansas; Dunn and Grant, in North Dakota; Muskogee and Sequoyah, in Oklahoma; Fall River, Jones, Mellette and Shannon, in South Dakota; Amelia, Brunswick, Dinwiddie, Greeneville, Powhatan and Sussex, in Virginia; and McDowell and Wyoming, in West Virginia.

C. C. Smith

D. G. Chase

BEMIS APPOINTMENTS—C. C. Smith has been appointed plant merchandiser for the Buffalo plant of the Bemis Bro. Bag Co., and D. G. Chase has been named sales manager for the Buffalo Sales Division. Mr. Smith will be responsible for merchandising products manufactured by the Buffalo plant; Mr. Chase will be responsible for the sale of all Bemis products in the Buffalo territory, regardless of where they are manufactured. Mr. Smith joined Bemis in 1906 at St. Louis where he worked in the order department. In 1914 he went to Indianapolis as a salesman, and transferred to Buffalo in 1924. He was made sales manager in 1939. Mr. Chase joined the company as a salesman at Minneapolis in 1940 and transferred to Buffalo in January of 1954. Bemis also has announced that J. T. Trotter has been named sales manager of the Bemis multiwall paper bag plant at East Pepperell, Mass. He replaces R. B. LeRoy, who has taken over new responsibilities with the company. C. C. Cobb has been appointed resident manager of the firm's St. Louis paper specialty plant. He was formerly sales manager for the 3-plant paper specialty organization of the company.



Dr. G. N. Hoffer

RETIRES—Dr. G. N. Hoffer retired recently as Midwest manager for the American Potash Institute, a position which he had held since the formation of the Institute in 1935. Dr. Hoffer is internationally known for his research work in plant nutrition, plant physiology, corn breeding and diagnostic techniques for identifying plant-food deficiencies, and he has been the recipient of many outstanding recognitions. He will remain active as a consultant in his fields of interest and his residence will continue to be in West Lafayette, Ind. Dr. Werner L. Nelson, who resigned his connections with North Carolina State College last October to work with Dr. Hoffer, has been named Midwest manager for the Institute.

Khapra Beetle Control Under Study In California

BERKELEY, CAL. — How fumigants affect seeds and food products quarantined against the spreading infestations of the Khapra beetle in California is the subject of a current study on the Riverside campus of the University of California.

The tests are part of a comprehensive project aimed at controlling the highly destructive pest, which has been found in wheat, powdered milk, nuts, spaghetti, rice, oats, barley, bran, rye, malt, and seeds of various leguminous crops.

A total of 54 infestations has been reported in the state since the beetle was first found in Tulare County in 1953. The discovery was the first on record in the United States.

Preliminary tests at Riverside indicate that the larvae of the beetle are relatively resistant to most commonly used insecticides and fumigants, according to Dr. David L. Lindgren, entomologist, directing the project.

Of the fumigants tested so far, methyl bromide appears to be the most effective. Even so, several times as much fumigant is required to kill the Khapra larvae as is needed to kill adults of the other major grain pests, such as the rice weevil, granary weevil, and lesser grain borer, Dr. Lindgren says.

The larvae are able to withstand long periods of starvation and to live in stored foodstuffs with low moisture content. Its habits of congregating in cracks and crevices and behind plaster also make control difficult, Dr. Lindgren points out.

Although the beetle generally restricts its activity to the top 12 inches of grain, it has occasionally been found to depths of six feet and it may penetrate as deep as nine feet along the walls and in corners of grain elevators and warehouses.

Fruit and Tree Nut Committee Urges Insect, Disease Research

WASHINGTON — The Deciduous Fruit and Tree Nut Research and Marketing Advisory Committee of the U.S. Department of Agriculture met here recently to review progress in deciduous fruit and tree nut research.

Among top recommendations of the group are:

In production research—expand research on virus diseases of fruits; expand work on the relationship of insects to the numerous viruses of tree, bush, and small fruits.

In marketing research—in view of the acute insect problem in stored raisins, expand the staff and facilities of the Fresno, Cal., station to expedite studies on raisins, and initiate studies on preventing insect infestation in tree nuts and nut meats in market channels.

Burley Fertilizer Recommendations Issued

LEXINGTON, KY.—Recommendations for fertilization of burley tobacco have been released by the Fertilizer Committee of the Burley Tobacco Workers' Conference.

The committee points out that the recommendations are general and that each burley field should be considered as an individual fertilizer problem.

Factors to consider are (1) chemical soil test, (2) yield and quality of tobacco normally produced in the field, (3) cropping and fertilizer history and (4) soil type, the committee says.

Recommended minimum grades for field fertilization are as follows:

Kentucky—5-10-10, 5-10-15 and 6-6-18.

Tennessee—4-12-8, 4-8-12, 3-12-12 and 3-9-18.

North Carolina—8-8-8, 4-8-10, 3-9-9 and 8-0-24 (side dressing).

Virginia—4-8-10, 3-9-9, 6-12-15 and 8-0-24 (side dressing).

Indiana—4-12-8, 6-12-12 and 3-9-18.

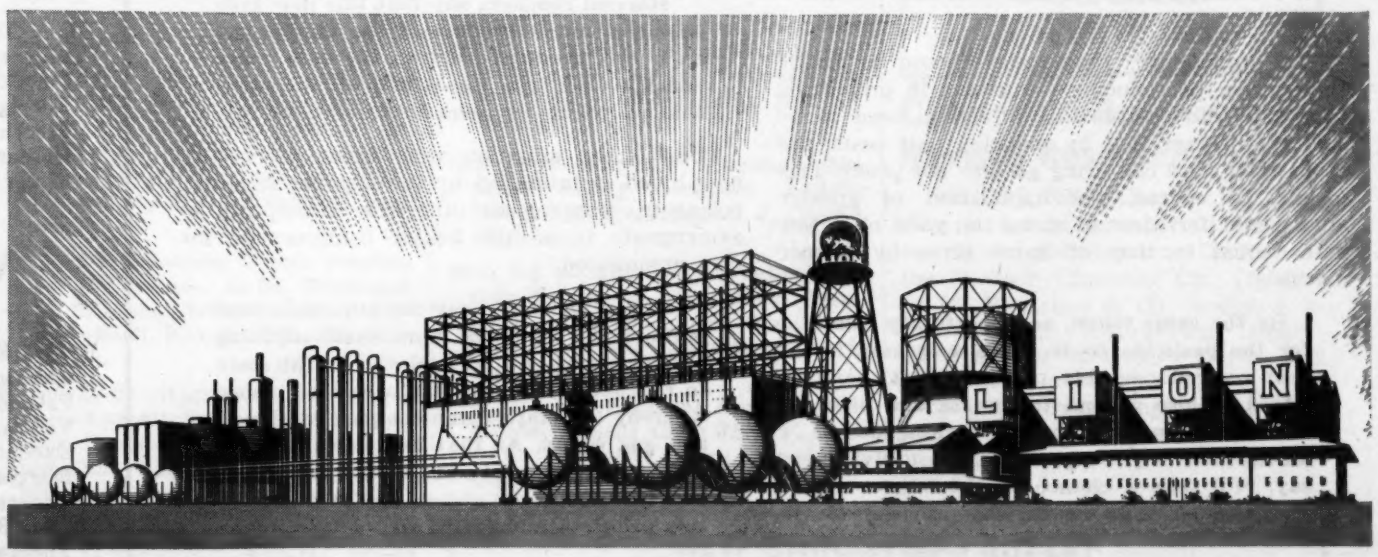
Ohio—8-8-8, 4-12-8 and 3-12-12.

Missouri—5-10-10, 3-9-18, 12-12-12 and 16-20-0.

Minimum grades for plant bed fertilization are:

Tennessee 4-12-8, North Carolina 4-9-3 and Virginia 4-9-3.

Members of the Fertilization Committee of the Burley Tobacco Workers Conference are G. R. Mathews, Virginia Polytechnic Institute, chairman; Charles Bortner, University of Kentucky; J. E. McMurtrey, U.S. Department of Agriculture, Beltsville, Md.; B. C. Nichols, University of Tennessee; Luther Shaw, University of North Carolina; D. R. Browning, West Virginia University; Russell A. Hunt, University of Kentucky, and R. R. Bennett, University of North Carolina.



How LION Helps YOU Sell NITROGEN FERTILIZERS

✓Two Giant Chemical Plants Assure the Supply
✓Advertising Helps Create the Demand

As a retailer, you'll find it to your advantage to sell Lion nitrogen fertilizers, because Lion's manufacturing capacity and storage facilities assure a ready supply of top-quality materials, and Lion's consistent advertising *pre-sells* the Lion brand.

Capacity? Lion's two giant chemical plants are now in production, making Lion a leader in manufacturing the most popular and economical types of nitrogen fertilizers not only in the South but nation-wide.

Delivery? Lion has constructed huge storage facilities to accumulate enormous stocks of the various nitrogen fertilizer materials. Even when demand is intense, you can get Lion nitrogen products.

Pre-selling? Lion's continuous advertising does an effective pre-selling job for you with your farmer customers. See list below.

Feature and sell nitrogen fertilizers with the Lion emblem on the bag, or Lion's anhydrous ammonia. You'll make sales easier, which means more profit for you.

Look To LION—A Leader In Petro-Chemicals—For Nitrogen Fertilizers

Lion Anhydrous Ammonia • Lion Ammonium Nitrate Fertilizer
Lion Aqua Ammonia • Lion Nitrogen Fertilizer Solutions
Lion Sulphate of Ammonia

LION FERTILIZER ADVERTISING REGULARLY APPEARS IN:
- Farm & Ranch-Southern Agriculturist
- Prairie Farmer
- Progressive Farmer
- Wallace's Farmer & Iowa Homestead
- Leading State Farm Publications

DISTRICT SALES OFFICES:
NATIONAL BANK OF COMMERCE BLDG., NEW ORLEANS, LOUISIANA
SHEPHERD BUILDING, MONTGOMERY, ALABAMA

LION OIL COMPANY
CHEMICAL SALES DIVISION — EL DORADO, ARKANSAS

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The rotational circulation of this issue is concentrated in the Southern states.

Opportunity in the Squeeze

Recent tabulations by USDA indicate that farm income generally is still tending to be on the decline, while operating costs remain steady at a near-record level. This is not particularly news to the fertilizer and pesticide trades, except that the situation is a continuing one.

Of particular significance, however, is the fact that the better farmers; those who have exercised good judgment in fertilizing their crops adequately and also using pesticides to protect their investment against insects and plant diseases—are the ones who are remaining in a sound economic condition.

The remainder, those who choose to battle the squeeze by reducing everything in proportion to the difficulty of making a living, need to be sold on the fact that by reducing unit costs, the crops they raise can bring greater net profit. This means, of course, the application of greater amounts of fertilizer to make the yield on a few acres equal to that of more acres by former methods.

By the same token, an opportunity exists for the pesticide trade, since a farmer, intent on reducing his per unit cost, can't afford to lose ground to insects and plant diseases. Actually, a grower making use of all his land in years past, could conceivably say, "I'll take a chance on the bugs . . ." and thus postpone making any provision for their control.

Under an economy of restricted acreages, however, no grower who knows day from night should face such a risk without reasonable assurance that he could cope with an infestation immediately and adequately. The margin for loss is small when each bushel means so much.

With some tolerances having been set, pesticide people can move ahead with more confidence than they could previously. Now it is established how far growers can go in killing insects with modern pesticides without endangering their crop with too great a residue.

It all adds up to opportunity for the sellers of various chemicals for the farm. But it is an opportunity that won't take care of itself without a great deal of promotion on the part of sales people. There is not only a selling job to do, but also one of teaching the farmer how he can get ahead of the game through improved management practices.

These New Atomic Pests

West Texas ranchers have mostly learned how to control insect pests and the depredations of various rodents, but word coming from there indicates that a new type of range pest is now stalking the land. This creature, they report, is a two-legged affair, carrying a little gadget that clicks like a cricket.

Harried ranchers say that this new type pest is a direct product of the atomic age . . . . the uranium hunter. He does more damage than loco weeds and all the other noxious plants combined, landowners say.

Unlike the situation with other pests, this new breed is protected by law against shooting, poisoning, trapping or otherwise attempting to exterminate it, so the hunter continues on his way unmolested.

In fact, it is the way the law reads that bothers the ranchers more than anything else. Contracts for all land sold by the state to ranchers after 1919 had a reserve clause whereby the state withholds part of the oil and gas rights. At that time uranium was only an insignificant word in the dictionary, and the state now claims all the rights to this priceless mineral.

At a recent meeting in Fort Worth, the directors of the Cattle Raisers Association voted to ask the legislature to change the law so that landowners would have the same rights to uranium that they have to other minerals.

Since traces of it were discovered in Texas, floods of prospectors have swarmed over the ranches with their geiger counters, climbing fences, frightening cattle and sheep, and getting into the ranchers' hair generally.

Under the present laws, prospectors can hunt uranium on this land without asking the owner's permission. Evidently they haven't been asking, because on some ranches the owners report that there have been more prospectors than there are cattle.

WASHINGTON WIRE

Soybeans—Key to Diverted Acres?

By JOHN CIPPERLY
Croplife Washington Correspondent

One of the most logical prospects for a new crop to replace those removed from the picture through allotments, may be soybeans. With a probable price support level of $2 a bu. for soybeans in 1955, it certainly appears to be a better bet, dollars-and-cent-wise, than oats or barley.

The support price, as indicated following a recent meeting of the Commodity Stabilization Service and representatives of the trade, is regarded by many as being acceptable as a goal, and is expected to be accepted by congressional leaders.

What does this development mean to the fertilizer trade? It is evident that the soybean crop may be a bell-wether for the plant food industry as its sales executives look over the reduced acreage situation.

Even though the use of fertilizer materials on soybeans may not bring results as spectacular as in the case of corn and wheat, for instance, the possibilities of sales are still good. Either he can make plant food pay dividends in soybean production, or he must gear his sales story to convince the farmer of gains to be had from using his diverted acres for production of oats, barley and grain sorghums.

Keyed to the contemplated decision of CSS on soybean price supports for the 1955 crop, is the twin problem of support for the other oilseed crops. It is understood that the overall policy in the making will be to support the price of flaxseed at $3 bu. and to drop price supports for cottonseed and its products.

Teamed with the planned $2 a bu. support level for beans is the plan to commit CCC to buy soybean oil at a reflected price level for beans at $2 bu. if the entire edible oil market gets into the doldrums.

The foregoing is about the way CSS has worked out its operational recommendations. This decision will be announced soon if the proposal can be sold to Republican politicians on Capitol Hill.

In any event, this responsible report on indication of policy now lines up the market prospects for plant food for the coming year; since as far as price supports help to make the plant food market, now virtually all cards are on the table.

CROPLIFE is a controlled circulation journal mailed to those responsible for the production and distribution of fertilizer and other farm chemicals and to retail dealers of the agricultural chemical industry in the U.S. To those not on the controlled list, CROPLIFE is available at $5 for one year, $9 for two years ($8 a year outside the U.S. and possessions). Single copy price, 25¢.

●

LAWRENCE A. LONG
Editor

DONALD NETH
Managing Editor

EDITORIAL STAFF—George L. Gates, Market Editor; John Cipperly, Washington Correspondent; George E. Swarbreck, Foreign Manager; Emmet J. Hoffman, Merchandising Editor; L. R. McDonald, Research Director; Frank W. Cooley and Roger Berglund, Assistant Editors.

●

WILFRED E. LINGREN
Advertising Director

BUSINESS STAFF—Carroll K. Michener, Chairman of the Board of Directors; H. J. Pattridge, Honorary Chairman; Harvey E. Yantis, President; Milton B. Kihlstrum, Executive Vice President and Treasurer; Martin E. Newell, Vice President; Don E. Rogers, Vice President; Wilfred E. Lingren, Secretary and Advertising Director; Thomas A. Griffin, Business Manager; Edwin J. Hartwick, Circulation Manager; James G. Pattridge, Assistant Treasurer; Carl R. Vetter, Advertising Production Manager; Peter G. Psyhogios, Classified Advertising Manager.

●

BRANCH OFFICES

EASTERN STATES—George W. Potts, Paul L. Dittemore, Co-Managers, 114 East 40th St., New York 16, N. Y. (Tel. Murray Hill 3-3768).

CENTRAL STATES—Don E. Rogers, Manager; Henry S. French, Assistant Manager; 2272 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill. (Tel. Harrison 7-6782).

SOUTHWEST—Martin E. Newell, Manager; James W. Miller, Assistant Manager; 614 Board of Trade Bldg., Kansas City 6, Mo. (Tel. Victor 1350).

FOREIGN—George E. Swarbreck, Manager, 901 Lumsden Bldg., Toronto 1, Ont. (Tel. Empire 4-5654).

WASHINGTON CORRESPONDENT — John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

EXECUTIVE AND EDITORIAL OFFICES—2501 Wayzata Blvd., Minneapolis, Minn., Tel. Main 0575. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D. C. (WA 82). Cable Address: "Palmking," Minneapolis.

●

Published by
The Miller Publishing Co.
2501 Wayzata Blvd.
Minneapolis, Minn.
(Address Mail to P.O. Box 67, Minneapolis 1, Minn.)

Associated Publications
THE NORTHWESTERN MILLER
THE AMERICAN BAKER
FEEDSTUFFS
MILLING PRODUCTION

MEETING MEMOS

Jan. 31—Wisconsin Lime & Fertilizer Dealers and Pacemakers Corn Club, Memorial Union Theater, University of Wisconsin, Madison.

Jan. 31-Feb. 1 — National Cotton Council, 17th Annual Meeting, Shamrock Hotel, Houston, Texas.

Feb. 7-8—Seventh Annual Colorado Sprayers & Dusters Conference, Student Union, Colorado A & M Campus, Fort Collins, Colo., Leslie B. Daniels, Secretary, Colorado Aerial Sprayers & Dusters Assn., Fort Collins.

Feb. 7-9—Pest Control Conference, Oklahoma A & M College, Stillwater, Okla.

Feb. 7-9 — Association of Southern Agricultural Workers, 52nd annual meeting, Louisville; B. B. Jones, P. O. Box 1460, New Orleans, secretary-treasurer.

Feb. 2-3 — Agricultural Chemicals Conference, Texas Technological College, Lubbock, Texas.

Feb. 8-11 — Fertilizer-Seed Dealer Meetings, University of Tennessee: Feb. 8, Andrew Jackson Hotel, Nashville; Feb. 9, City Hall, Jackson; Feb. 11, McCord Hall, University of Tennessee Farm, Knoxville.

Feb. 10-11 — Third Annual Oregon Fertilizer Conference, Oregon State College, Corvallis, Ore.

Feb. 10-11—Crop and Soil Conference, Oklahoma A. & M., Stillwater, Okla.

Feb. 11—New York Section, American Chemical Society, Symposium of Agricultural Chemical Development, Carbide and Carbon Bldg., New York.

Feb. 14-16 — Centennial Symposium, Nutrition of Plants, Animals, Man, Michigan State College, East Lansing, Mich.

Feb. 15-16—Fourth Annual Pesticide Chemicals School, Clemson College, Clemson, S.C. Direct Correspondence to Dr. J. H. Cochran, Clemson Dept. of Entomology & Zoology, or to Dr. G. M. Armstrong, Clemson Dept. of Botany & Bacteriology.

Feb. 17-18—Middle West Soil Improvement Committee, Annual Meeting with Agronomists, Palmer House, Chicago, Z. H. Beers, 121 W. Wacker Drive, Chicago 1, Ill., Executive Secretary.

Feb. 23-25—Tenth Annual Meeting of Midwestern Chapter, National Shade Tree Conference, Chase Hotel, St. Louis, N. B. Wysong, Cook County Forest Preserve, 536 N. Harlem Ave., River Forest, Ill., secretary-treasurer.

Feb. 23-25 — Fourth Annual Ohio-Indiana Agricultural Aviation Conference, Union Bldg., Purdue University, Lafayette, Ind.

Feb. 28-March 1—Fertilizer Section, Southern Safety Conference, Jung Hotel, New Orleans, Curtis A. Cox, Virginia-Carolina Chemical Co., Richmond, Va., Chairman.

March 7-9 — National Agricultural Chemicals Assn., Spring Meeting, Chase and Park Plaza hotels, St. Louis. Lea S. Hitchner, Associations Bldg., 1145 19th St. N.W., Washington, D.C., Executive Secretary.

March 8-9—Western Cotton Production Conference, Hotel Westward Ho, Phoenix, Ariz.; National Cotton Council, P.O. Box 18, Memphis 1, Tenn.

March 22-24—National Farm Chemurgic Council, Inc., Annual Conference, Deshler-Hilton Hotel, Columbus, Ohio; John W. Ticknor, NFCC, 350 Fifth Ave., New York, conference chairman.

March 24-25—North Central States Branch, Entomological Society of America, East Lansing, Mich.

Apr. 26 — Third Annual California Fertilizer Conference, sponsored by the Soil Committee, California Fertilizer Assn., University of California, College of Agriculture, Davis, Cal., Sidney H. Bierly, Executive Secretary, CFA, 475 Huntington Drive, San Marino, Cal.

May 19—Fertilizer Section, 25th Annual North Carolina Safety Conference, Robert E. Lee Hotel, Winston Salem, N.C; William C. Creel, Safety Director, Department of Labor, State of North Carolina, Raleigh, Chairman.

June 3—Fertilizer Section, Virginia State Safety Association, Jefferson Hotel, Richmond, Va; William C. Richardson Southern States Cooperative, Richmond, Chairman.

June 12-15—Joint meeting, American Plant Food Council, Inc. and National Fertilizer Association, Greenbrier Hotel, White Sulphur Springs, W.Va. Paul T. Truitt, American Plant Food Council, 910 17th St. N.W., Washington, D.C., in charge of registration.

June 28-30 — Sixth Annual Pacific Northwest Plant Food Assn. Regional Fertilizer Conference, Boise Hotel, Boise, Idaho, Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., secretary.

Aug. 15-19 — American Society of Agronomy and Soil Science Society of America, University of California, Davis Campus.

Sept. 7-9 — Ninth Annual Beltwide Cotton Mechanization Conference, Texas A&M College, National Cotton Council of America, Box 18. Memphis 1, Tenn.

Oct. 17-18—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago, Thomas J. Clarke, Chairman.

Nov. 2-3 — Annual Convention, Pacific Northwest Plant Food Assn., Pilot Butte Inn, Bend Ore., Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., Secretary.

Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Criswell, Executive Vice President, Claridge Hotel, Memphis, Tenn.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $9 per column inch.

All Want Ads cash with order.

FOR FAST ACTION AND RESULTS try Croplife's CLASSIFIED ADVERTISING

Charles W. Bowman in Davison Research Post

BALTIMORE — Charles W. Bowman is a new member of the Research and Development Division of the Davison Chemical Co., Division of W. R. Grace & Co., assigned to the Research Engineering Department at the company's Curtis Bay (Baltimore) plant.

He is a chemical engineering graduate of Lehigh University and comes to Davison after a tour of duty with the army.

NEW CHINCH BUG KILLER!
EXCLUSIVE DISTRIBUTORS WANTED . . .
GET READY FOR BIG PROFIT SEASON JUST AHEAD

A sensational new method to destroy chinch-bugs developed, tested and ready for marketing by established chemical factory in S. Florida. Product, CHINCH-GAS is liquid, harmless to all vegetation, creates underground gas which penetrates deeply, killing chinches and preventing future invasion for months. ENORMOUS DEMAND. Exclusive distribution offered in your territory. Write for details on your letterhead.

CHEMICAL SPECIALTIES
243 S.W. 17th Ave., Miami, Fla.

INDEX OF ADVERTISERS

Acme Fisher Div., Broadway Rubber Corp. ...
Acme Protection Equipment Co. ...
Agricultural Chemical Equipment Co. ...
Allied Chemical & Dye Corp., Nitrogen Div. 10 & 11
American Potash & Chemical Corp. ...
Anco Manufacturing & Supply Co. ...
Arkell Safety Bag Co. ...
Ashcraft-Wilkinson Co. ... 17
Bagpak Division, International Paper Co. ...
Baker, H. J., & Bro. ...
Baughman Manufacturing Co. ...
Beaird, J. B., Company ... 8
Bemis Bro. Bag Co. ...
Benson-Maclean Co. ...
Bradley & Baker ... 8
Broadway Rubber Corp. ...
Burrows Equipment Co. ...
Butler Manufacturing Co. ...
Calcium Carbonate Co. ...
California Spray-Chemical Corp. ...
Campbell, H. D., Co. ...
Chase Bag Co. ...
Chemical Specialties ... 23
Clover Chemical Co. ...
Commercial Solvents Corporation ...
Croplife ... 24
Deere & Co., Grand River Chemical Div. ...
Diamond Alkali Company ...
Doane Agricultural Service ...
Douglas Chemical Co. ...
Ellsworth Equipment Co. ...
Export Chemical Corp. of Colorado ...
Fischbein, Dave, Co. ...
Frontier Chemical Co. ...
Fry, George H., Co. ...
Gandrud, E. S., Co. ...
Geigy Agricultural Chemical Co. ...
Grace Chemical Co. ...
Grand River Chemical Div., Deere & Co. ...
Hahn, Inc. ... 6
Hammond Bag and Paper Co. ... 17
Henderson Mfg. Co. ...
Hercules Powder Co. ...
Highway Equipment Co. ...
Hills-McCanna Co. ...
Hypro-Engineering, Inc. ...
International Minerals & Chemical Corp. ...
International Paper Co., Bagpak Division ...
K. B. H. Corporation, The ...
Kay Enterprises ... 18
Kraft Bag Corporation ...
Lion Oil Co. ... 21
Liquilizer Corp. ...
Markley Laboratories, The ...
Wilson & George Meyer & Co. ...
Michigan Chemical Corporation ... 15
Midstate Machinery Co. ... 18
Minneapolis Sewing Machine Co. ...
Naugatuck Chemical Div., U.S. Rubber Co. ...
Nelson, Edward S., Ltd. ...
Nitrogen Div., Allied Chemical & Dye Corp. 10 & 11
Chas. Pfizer & Co., Inc. ...
Phelps-Dodge Refining Corp. ...
Pittsburgh Coke & Chemical Company, Agricultural Chemicals Division ... 19
Potash Company of America ...
Powell, John, & Co., Inc. ... 2
Private Brands, Inc. ...
Rapids Machinery Co. ...
Savage, K. E., Co. ...
Schrock Fertilizer Service ...
Shell Chemical Corp. ... 5
Specifide, Inc. ...
Spencer Chemical Co. ...
Stoker, H. S., Company ...
Tennessee Corp. ...
Thompson-Hayward Chemical Co. ... 7
Union Bag & Paper Corp. ...
United Petroleum Gas Co. ...
U.S. Industrial Chemicals Co. ...
United States Potash Co. ...
U.S. Rubber Co., Naugatuck Chemical Div. ...
United States Steel Corp. ...
Velsicol Corporation ...
Virginia-Carolina Chemical Corp. ... 13
Vulcan Stamping & Mfg. Co. ...
Vulcan Steel Container Co. ...
Woodward & Dickerson, Inc. ...

Croplife

FOR RICHER FIELDS

PUBLISHED EVERY MONDAY

A WEEKLY NEWSPAPER FOR THE TWO BILLION DOLLAR AGRICULTURAL CHEMICAL INDUSTRY

Vol. 1 — AUGUST 23, 1954 — No. 11

Cover Crop Provisions of ACP Outlined

Program Authorizes Payment for Lime, Fertilizer, Seed

Impact of Farm Law on Industry Hinges on Diverted Acre Policy

By JOHN CIFFELLI

Fall Fertilization, Need for Balanced Fertility Stressed at Wisconsin Ammonia Meeting

Eagle-Picher Sulfuric Acid Unit Starts Up

Minnesota Armyworm Campaign Saves $40 Million

Inside You'll Find

Compliance Deadline Near for Kentucky Law

INSECT, PLANT DISEASE NOTES See Page 4

Croplife delivers the KNOW-*NOW*!

ONLY A WEEKLY NEWSPAPER can keep the industry up to date on the important policy changes being made in the nation's capital—news that affects market potentials *NOW*, that creates new market opportunities *NOW*.

ONLY A WEEKLY NEWSPAPER can keep the industry up to date on infestation outbreaks, crop conditions, farming trends — news of immediate value in planning the week-to-week operations of the industry's business *NOW*.

ONLY A WEEKLY NEWSPAPER can keep the industry up to date on the fast-moving plans for expansion of plants, new plant construction, changes in personnel—news of importance to the decision-makers of the industry *NOW*.

ONLY A WEEKLY NEWSPAPER can keep the industry up to date on new developments reported by experiment stations, outlined at association conventions and regional meetings, announced by industry researchers—news of value *NOW*.

and Croplife is the ONLY WEEKLY NEWSPAPER serving the industry

THAT'S WHY Croplife is changing the *READING HABITS* of the agricultural chemical industry by giving its readers—the decision-makers of the industry—the know-how, the know-what, the know-when and, most important, the know-NOW. That's why Croplife is *MUST* reading.

TO ADVERTISERS interested in the agricultural chemical industry this means, logically, that Croplife is a *MUST* medium for their advertising message. Keep your story up to date—give your customers the news and information about your products they need in the *week-to-week* operation of their business.

WRITE-WIRE-PHONE for the full story of your advertising opportunity in

Croplife

...for richer sales fields

published by The Miller Publishing Co.

NEW YORK	CHICAGO	KANSAS CITY	MINNEAPOLIS
114 East 40th Street	2272 Board of Trade Bldg.	614 Board of Trade Bldg.	2501 Wayzata Blvd.
MUrray Hill 3-3768	HArrison 7-6782	Victor 1350	MAin 0575